BLYTHE SOLAR POWER PROJECT

REVISED PETITION FOR AMENDMENT

Submitted by:

NextEra Blythe Solar Energy Center, LLC

Submitted to:

California Energy Commission

April 2013

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ABBREVIATIONS AND ACRONYMS

°C	degrees Celsius
°F	degrees Fahrenheit
AC	alternating current
ACC	air cooled condenser
AF	acre-feet
AFB	Air Force Base
AFC	Application for Certification
AFY	acre-feet per year
AO	Authorized Officer
Applicant	NextEra Blythe Solar
BLM	Bureau of Land Management
BMP	Best Management Practices
BMSP	Blythe Mesa Solar Project
BSPP	Blythe Solar Power Project
CAISO	California Independent System Operator
CARB	California Air Resources Board
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CdTe	cadmium telluride
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CNDDB	California National Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COC	Condition of Certification
Commission	California Energy Commission
CPM	Compliance Project Manager
CRMMP	Cultural Resources Mitigation and Monitoring Plan
CRS	Colorado River Substation
CRS	Cultural Resource Specialist
CSP	concentrating solar thermal collection
CY	cubic yard
DAS	data acquisition system
DC	direct current
DDWW	desert dry wash woodland
DEIS	Draft Environmental Impact Statement
DESCP	Drainage, Erosion, and Sediment Control Plan
DHS	Department of Health Services
DPM	diesel particulate matter
EAP	Emergency Action Plan
EDI	electrodeionization

EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
gen-tie	generation tie line
GHG	greenhouse gas
gpd	gallons per day
gpm	gallons per minute
hp	horsepower
HRA	health risk assessment
HTF	heat transfer fluid
I-10	Interstate 10
kV	kilovolt
LGIA	Large Generator Interconnection Agreement
LORS	Laws, Ordinances, Regulations, and Standards
M	meter
MDAQMD	Mohave Desert Air Quality Management District
MFTL	Mohave fringe toed lizard
MSEP	McCoy Solar Energy Project
MW	megawatt
N_2O	nitrous oxide
NEPA	National Environmental Policy Act
NextEra Blythe Solar	NextEra Blythe Solar Energy Center, LLC
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
OEHHA	Office of Environmental Health Hazard Assessment
O&M	operations and maintenance
PA	Plan Amendment
PCS	Power Conversion Station
PEIS	Programmatic Environmental Impact Statement
PER	Programmatic Environmental Report
PM_{10}	particulate matter of 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PPA	Prehistoric Project Archaeologist
PPE	personal protective equipment
PQAD	Prehistoric Quarries Archaeological District
PSPP	Palen Solar Power Project
PTA	Petition to Amend
PV	photovoltaic
PVSI	Palo Verde Solar I, LLC
RCALUC	Riverside County Airport Land Use Commission
REAT	Renewable Energy Action Team
ROD	Record of Decision
ROG	reactive organic gas
ROW	right-of-way
ROWD	Report of Waste Discharge

RRG	Renewable Resources Group
RSEP	Rice Solar Energy Project
RWQCB	Regional Water Quality Control Board
SA	Staff Assessment
SCADA	Supervisory Control and Data Acquisition
SCE	Southern California Edison
SEZ	Solar Energy Zone
SF_6	sulfur hexafluoride
SUT	step-up transformer
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VMT	vehicle mile traveled
WBO	Western burrowing owl
WDR	Waste Discharge Requirements
WIL	Wildlife Investigations Lab

Section 1 INTRODUCTION

1.1 BACKGROUND

NextEra Blythe Solar Energy Center, LLC (NextEra Blythe Solar), a wholly owned subsidiary of NextEra Energy Resources LLC, is the current owner of the Blythe Solar Power Project (BSPP). A Petition to Amend (PTA) the BSPP for conversion to photovoltaic (PV) technology was submitted to the California Energy Commission (Commission or CEC) on June 28, 2012. This document is a revision to the June 28 PTA.

NextEra Blythe Solar files this revised PTA to convert the electrical generating technology from concentrating solar thermal collection (CSP) and steam turbine technology of the BSPP to PV solar technology. Throughout this document, the 1,000 megawatt (MW) solar thermal project is referred to as the "Approved Project" and the PV project is referred to as the "Modified Project." The BSPP is located at 1000 Dracker Drive, Blythe, California 92225 in Riverside, California, on land administered by the Bureau of Land Management (BLM). The project will be located within the boundaries of the previously issued Right-of-Way (ROW) Grant (CACA 048811). The proposed project site is located 8 miles west of Blythe, California and 3 miles north of Interstate 10 (I-10). Current access to the site is from Exit #232, Airport/Mesa Drive on I-10 via Mesa Drive Road. The BSPP site is located within the Palo Verde Area Plan of Riverside County.

Palo Verde Solar I, LLC (PVSI) submitted an Application for Certification (AFC) for the BSPP to the Commission on August 24, 2009 (09-AFC-6). In 2008, PVSI's predecessor-in-interest filed a 299 ROW Grant Application with the BLM to develop the BSPP on public lands. Consistent with a Memorandum of Understanding between the BLM and the CEC, the agencies prepared a joint environmental compliance document to address the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for the BSPP. Specifically, a Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was prepared and was circulated for agency and public review and comment between March 19, 2010, and June 17, 2010. The BLM and the CEC prepared separate final documents for compliance with NEPA and CEQA, respectively. The CEC issued its Final Decision on September 15, 2010. The BLM published the Plan Amendment/Record of Decision (PA/ROD) on October 22, 2010 and issued the ROW Grant on November 4, 2010.

The Final Decision allowed the BSPP to be constructed in phases. PVSI obtained a Notice To Proceed for construction of Phase 1A of the BSPP on November 4, 2010 and immediately began construction. PVSI continued construction of portions of Phase 1A until August 2011. On August 25, 2011, PVSI sent a letter to the Commission and to BLM outlining that it would cease construction activities on the BSPP site and would seek to amend the ROW Grant and the Final Decision to allow construction and

operation of PV technology on the site. This letter outlined maintenance activities that would continue on site to ensure site security and prevent off-site environmental impacts. The BLM and Commission approved a maintenance plan and associated activities on September 8, 2011. PVSI maintained the site until the project was sold to NextEra Blythe Solar. In September 2012, NextEra Blythe Solar received CEC/BLM approval of a revised maintenance plan, and in December 2012 NextEra Blythe Solar completed a key component of that plan which involved dismantling several miles of desert tortoise/silt fencing.

In November 2011, BSPP completed the acquisition of 858.5 agency-approved acres of off-site mitigation land – 89.5 acres more than the 769 acres required for Phase 1A per Condition of Certification (COC) BIO-28.

1.2 ORGANIZATION OF THIS PETITION

This section provides an introduction to the project, discusses the authority for the Commission to exercise jurisdiction over this Petition, outlines the purpose and need of the Petition, and outlines the benefits from the BSPP after modification.

Section 2 of the Petition describes the modifications proposed to convert the BSPP to PV technology as well as the modifications to the project footprint.

Sections 3, 4, 5, and 6 contain analysis of the proposed modifications comparing the potential environmental impacts from the modified PV configuration to the potential environmental impacts of the original project as approved in the Commission Final Decision. These sections also include an update of laws, ordinances, regulations or standards applicable to the PV configuration where applicable. Where appropriate each technical section proposes modifications to the Conditions of Certification contained in the Commission Final Decision.

Section 7 discusses any potential effects on nearby property owners.

Section 8 contains conclusions and recommended findings for Commission consideration.

1.3 LEGISLATIVE CHANGES TO COMMISSION JURISDICTION

On October 4, 2011, the Legislature passed and the Governor signed into law SB 226 (Simitian). SB 226 added Section 25500.1 to the Public Resources Code which authorized the Commission to review and amend a License for a solar thermal power plant to the use of PV technology. Section 25500.1 applied to projects that met certain requirements. The BSPP meets all of the requirements of Section 2550.1. In accordance with Section (d) of Section 25500.1, the Commission shall process a

petition submitted under this section pursuant to Section 1769 of Title 20 of the California Code of Regulations.

1.4 PURPOSE AND NEED FOR AMENDMENT

PVSI originally proposed the use of concentrating solar technology for the BSPP site. At the time, PVSI was owned by Solar Millennium AG, which had the rights to a particular type of HelioTrough design that it was attempting to develop in the United States. Well after the Commission issued its Final Decision in 2010, Solar Millennium AG filed insolvency proceedings in Germany. As discussed in Section 1.1 above, the BSPP has been acquired by NextEra Blythe Solar. NextEra Blythe Solar desires to convert the solar generation technology from CSP to PV. This information was not known or anticipated at the time the Commission issued its Final Decision.

1.5 PROJECT AMENDMENT BENEFITS

The BSPP site has received a Commission Final Decision and a BLM ROW Grant. The Amendments proposed in this Petition provide an opportunity to deliver up to 485 MW of renewable power to Californians without the need to permit a new site. In addition, as described in this Petition the use of PV technology reduces the visibility of the project by significantly reducing the project footprint, removing four power blocks and associated 120-foot tall cooling towers, reducing the overall height of the solar collectors by approximately 15 feet, and removing heat transfer fluid (HTF) from the system. The use of a previously permitted site as reconfigured to further lessen environmental impacts with an approved Large Generator Interconnection Agreement (LGIA) is a responsible approach to helping California achieve its Renewable Portfolio Standards and beyond.

1.6 SCOPE OF ANALYSIS

Pursuant to Public Resources Code Section 25500.1, the Commission should process this Petition in accordance with Section 1769 of its regulations and the well-established principles of practice the Commission has followed when processing other petitions. This Petition has been prepared in accordance with those principles, focusing on comparing the modifications proposed herein to the Approved Project as described in the Commission Final Decision.

1.7 UPDATES TO THE PROJECT'S CUMULATIVE SCENARIO

A Cumulative Scenario for the Project was established during the SA of the BSPP and ultimately incorporated in the Final Commission Decision, and included a list of existing and future foreseeable projects in the vicinity of the Project. As part of this Amendment effort, a search was performed for new reasonably foreseeable future projects with the potential to increase the cumulative impacts described in the Commission Decision. It should be noted that the Area of Potential Effect varies among resource areas and, as

such, no standardized area was analyzed. A search of Riverside County and City of Blythe available permit filings has not revealed any additional projects that were not already included in the original Cumulative Impact analysis included in the BSPP Final Decision.

Section 2 DESCRIPTION OF PROJECT AMENDMENT

This section provides a description of the proposed modifications to the BSPP. The Final Decision describes the BSPP as a nominally rated 1,000 MW solar thermal generating plant using four solar fields of concentrating parabolic trough mirrors and four power blocks. The Commission Final Decision includes a description of the linear facilities including a transmission line interconnecting to the Colorado River Substation (CRS), primary and secondary access roads, telecommunication facilities, and a natural gas pipeline. For convenience, the term "Approved Project" refers to the BSPP as described in the Commission Final Decision. The terms "Project Modifications", "Modified Project" or "Project" refer to the BSPP as proposed in this Petition.

2.1 GENERAL PROJECT DESCRIPTION

2.1.1 Description of Approved Project

The Commission issued a Final Decision for the BSPP, which included a description of the BSPP as a solar thermal generating facility that would consist of four adjacent, independent units of 250 MW nominal capacity each for a total nominal capacity of 1,000 MW. The Approved Project would have utilized solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A HTF is brought to high temperature (750 degrees Fahrenheit [°F]) as it circulates through the receiver tubes. The HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced. Individual components of the Approved Project included:

- Solar Field and Power Block #1 (northeast);
- Solar Field and Power Block #2 (northwest);
- Solar Field and Power Block #3 (southwest);
- Solar Field and Power Block #4 (southeast);
- Access road from and including upgraded portion of Black Rock Road to on-site office;
- Warehouse/maintenance building, assembly hall, and laydown area;
- Telecommunications lines;
- Natural gas pipeline;
- Concrete batch plant;
- Fuel depot;
- On-site transmission facilities, including central internal switchyard;

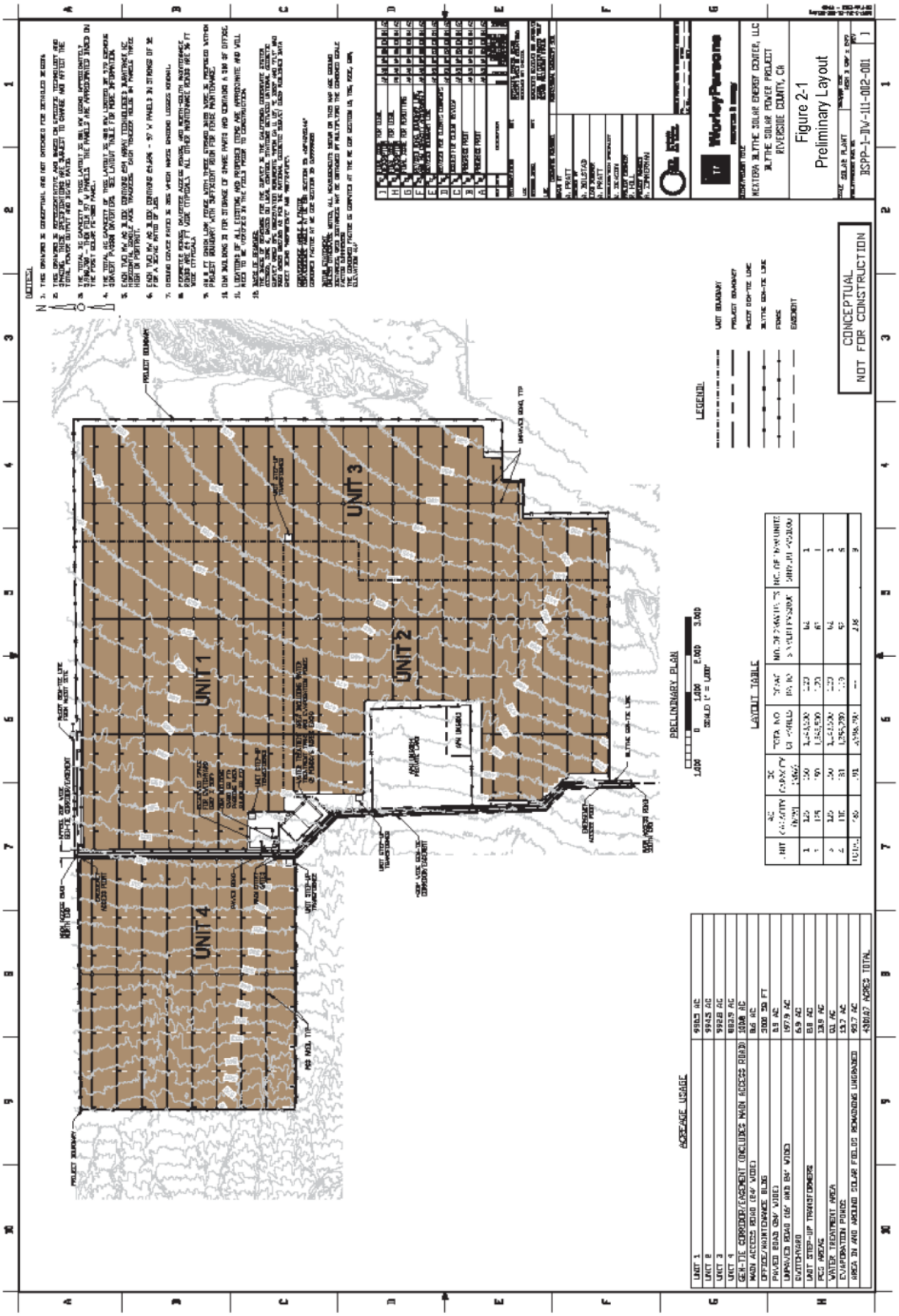
- 230 kilovolt (kV) double circuit gen-tie line interconnecting to the CRS;
- Groundwater wells used for water supply; and
- Distribution/construction power line.

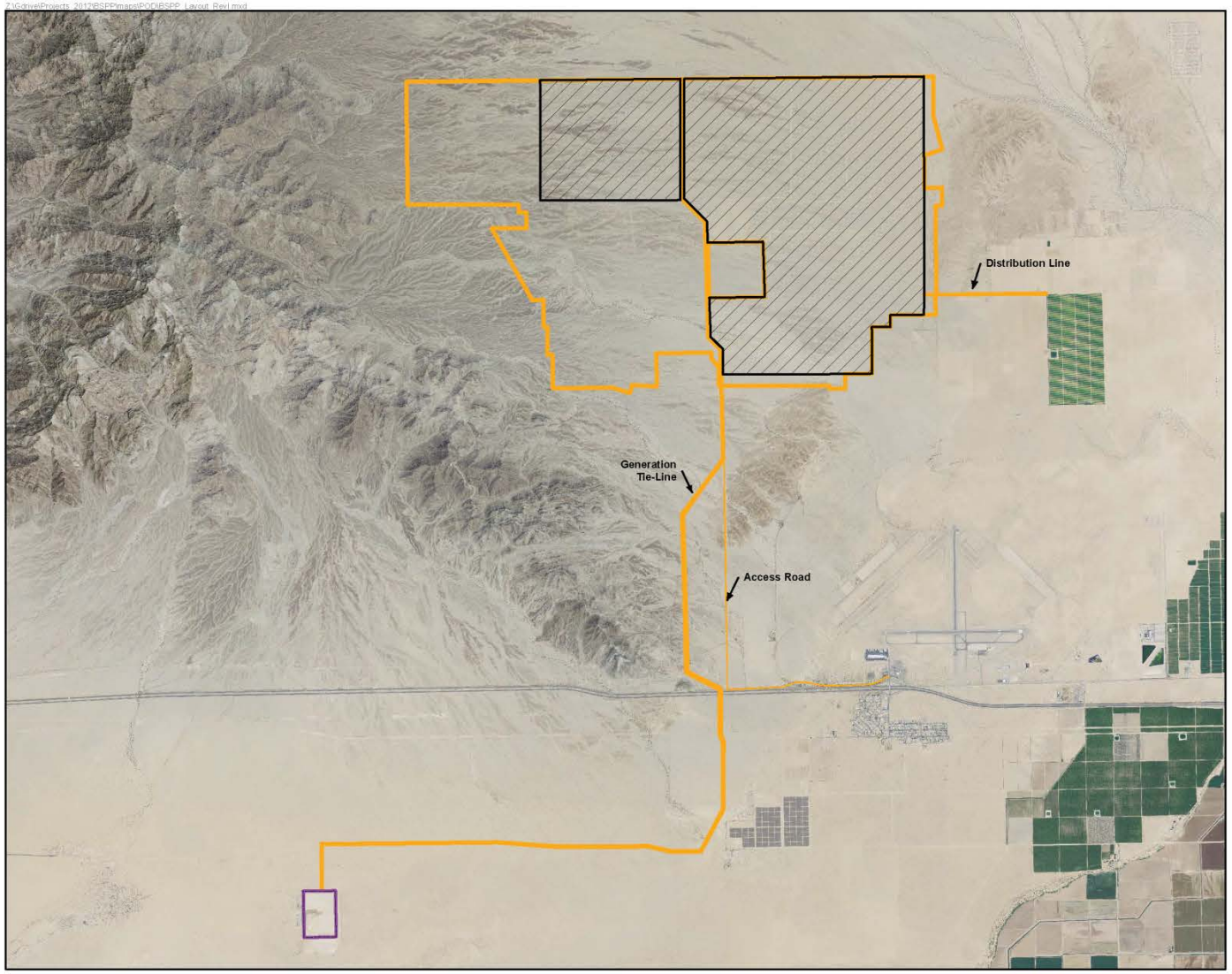
2.1.2 Description of Modified Project

The Modified Project includes replacing the solar thermal technology completely with PV generating technology and reducing the physical size of the Project. Linear access to the site would be the same as the Approved Project, and the BSPP would continue to interconnect to the regional transmission grid via the same proposed gen-tie line to Southern California Edison's (SCE's) CRS, which is currently under construction.

NextEra Blythe Solar (Applicant) proposes to develop BSPP in four operational phases designed to generate a total of approximately 485 MW nominal of electricity. The first three units (phases) would consist of approximately 125 MW alternating current (AC) of nominal electricity each. The fourth unit would generate approximately 110 MW AC, as shown on the Preliminary Layout, Figure 2-1. Note that the exact location of the boundaries between units is likely to change during final design. The transmission corridor is located in the center of the site with the exact location to be determined during final design. Because of the industry's rapid development and advancement in PV technology, the equipment shown for each unit is only representative of one type of technology that could be selected in the final design. NextEra Blythe Solar has not selected the specific PV modules nor has it decided on whether a tracker system, fixed tilt system, or combination of the two systems would be installed. Therefore, the analysis of the impacts associated with the Modified Project assumes a worst-case in terms of the technology employed. As described in Sections 3, 4, 5, and 6 the potential effects from each system are analyzed. NextEra Blythe Solar is requesting the Final Decision be amended in such a way as to allow the specific combination of technologies to be selected prior to construction without the need for filing another amendment. During operations, all four units would share an operations and maintenance (O&M) facility, one on-site switchyard, access and maintenance roads (either dirt, gravel, or paved), perimeter fencing and other ancillary security facilities, and a 230 kV gen-tie line. Figure 2-2 shows the overall Modified Project features.

The Modified Project would be located entirely on public land within BLM ROW #CACA – 048811. The total proposed acreage for the solar plant site is approximately 4,070 acres excluding linear facilities outside of the proposed solar plant site. Appendix A contains the legal description showing the current ROW request to BLM for the BSPP. Table 2-1 shows the estimated land disturbance for the solar plant site and the linear corridor, broken down into construction units and disturbance type.


UNIT 1
UNIT 2
UNIT 3
UNIT 4
PROJECT BOUNDARY
LEGEND:
UNIT BOUNDARY
PROJECT BOUNDARY
FENCE
EASEMENT
CONCEPTUAL
NOT FOR CONSTRUCTION
PRELIMINARY PLAN
SCALE: 1" = 1,000'
ACREAGE USAGE
UNIT 1 998.3 AC
UNIT 2 994.5 AC
UNIT 3 992.8 AC
UNIT 4 883.9 AC
GEN-TIE CORRIDOR/EASEMENT (INCLUDES MAIN ACCESS ROAD) 104.8 AC
MAIN ACCESS ROAD (84' WIDE) 8.6 AC
OFFICE/MAINTENANCE BLDG 3300 SQ FT
PAVED ROAD ONLY WIDTH 8.9 AC
UNPAVED ROAD (16' AND 84' WIDE) 197.9 AC
SWITCHYARD 6.9 AC
UNIT STEP-UP TRANSFORMERS 8.8 AC
PCS AREAS 13.8 AC
WATER TREATMENT AREA 0.1 AC
EVAPORATION PONDS 13.7 AC
AREA IN AND AROUND SOLAR FIELDS REMAINING UNGRADED 93.7 AC
4318.7 ACRES TOTAL
LAYOUT TABLE
Figure 2-1
Preliminary Layout
BLYTHE SOLAR POWER PROJECT
RIVERSIDE COUNTY, CA
MIDWAY BLYTHE SOLAR ENERGY CENTER, LLC
BSPP-1-DV-111-002-001



BLYTHE SOLAR POWER PROJECT
RIVERSIDE COUNTY, CA

Legend

- Approved Solar Thermal Project Boundary/Features
- Modified Project- PV Technology, 4,070 acres (Reduced from 6,831 acres)
- SCE Colorado River Substation

0 2,500 5,000 10,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: USDA, Tt, Worley Parsons

FIGURE 2-2
PROJECT FEATURES

TETRA TECH

TABLE 2-1
ESTIMATED LAND DISTURBANCE ACREAGE FOR THE BLYTHE SOLAR ENERGY PROJECT

Solar Plant Site	Unit 1 (Ac)[a]	Unit 2 (Ac)[a]	Unit 3 (Ac)[a]	Unit 4 (Ac)[a]	Totals (Ac)
Solar Field (includes solar panels and trackers, the inverter pad areas, the maintenance roads between the solar arrays and any drainage features within the interior edge of the 24' perimeter road)	976.3	979.5	976.2	862.0	3,794.0
Perimeter / Fence Maintenance Road (assumes 24 ft wide road, approximately 2.8 miles for Unit 1, 3.69 miles for Unit 2, 3.96 miles for Unit 3, 4.7 miles for Unit 4 and area between fence and property boundary)	16.3	14.3	16.6	15.7	62.9
On-site Switchyard	6.9	0.0	0.0	0.0	6.9
Shared Water Treatment Area / Evaporation Ponds	13.8	0.0	0.0	0.0	13.8
Shared O&M Building (approximately 3,000 square feet) and Parking Area (approximately 10,000 square feet)	0.3	0.0	0.0	0.0	0.3
Unused areas within Solar Plant Site Boundary between fence and exterior edge of 24' wide perimeter roads and areas around site facilities (counted as disturbed within site)	51.7	59.8	72.1	8.4	192.0
Subtotal Disturbed Areas Per Unit	*1,065.2*	*1,053.6*	*1,064.9*	*886.1*	4,069.8
Temporary Laydown Area, Unit 1/Unit 2/Unit 3/Unit 4 (converted to permanent solar field area at end of construction)[b]	15.0	15.0	15.0	15.0	60.0
Total Disturbed Area Within Solar Plant Site Boundary	4,069.8				
Previously Mitigated Area Within Solar Plant Site Boundary [d]	448.7	186.7	56.3	0.0	691.7
Total Disturbed Area Minus Mitigated Acreage Within Solar Plant Site Boundary	3,378.1				

Linear Facilities (Outside Solar Plant Site)	Permanent (Ac)	Temporary (Ac)	Totals (Ac)
North Linear Corridor (From Gen-tie Entrance into Project Switchyard to Northern Boundary)[e]			
Public Access Road from Gen-tie Entrance into Switchyard to Northern Boundary (4,878 LF long 24' wide two track disturbance through linear corridor)	2.7	0.0	2.7
Unused Area from Gen-tie Entrance into Switchyard to Northern Boundary (counted as disturbed)	19.7	0.0	19.7
South Linear Corridor (From Gen-tie Entrance into Project Switchyard to Colorado River Substation)			
Main Access Road from Unit 1/ Unit 4 Gates to Black Rock Road (24,459 LF long 24' wide road with 3' shoulders)	16.8	0.0	16.8
Gen-tie Support Poles from Project Switchyard to CRS (assumes 56 monopoles or H-frame poles to be spaced about 800' apart, each foundation requiring 50' by 50' temporary disturbance and 12' by 12' permanent disturbance) [c]	0.2	3.2	3.4
Gen-tie pole spur roads from Project Switchyard to CRS (56 poles times 15' wide by 100' long)	1.9	0.0	1.9
Gen-tie maintenance road from Project Switchyard to CRS (where not coincident with Main Access Road)(40,940 LF 24' wide corridor)	22.6	0.0	22.6
String Pulling Sites (assumes 38 pulling sites 100' by 300', not including pole disturbances listed previously)	0.0	26.2	26.2
Gen-tie line Construction Laydown/Assembly Areas [b]	0.0	3.0	3.0

Linear Facilities (Outside Solar Plant Site)	Permanent (Ac)	Temporary (Ac)	Totals (Ac)
Distribution Line (Lemon Grove to Eastern BSPP Boundary)			
Distribution Line Poles (assumes 40 poles to be spaced about 150' apart along 5,967' long line, each requiring 25' by 25' temporary disturbance and 3' by 3' permanent disturbance)	0.1	0.6	0.7
Distribution Line Spur Roads (assumes 40 spur roads corresponding to every pole, 12 ft wide and approximately 120 ft long) [(c)]	1.3	0.0	1.3
Distribution Line Maintenance Road (assumes 5,967 LF long road from Lemon Grove to site boundary 24' wide with 3' shoulders)	4.1	0.0	4.1
Subtotal for Linear Facilities Disturbed Area (Temporary and Permanent)	*69.4*	*30.0*	99.4
Previously Mitigated Area within Linear Facility Corridor (Ac) [(d)]	77.3		
Total Linear Facilities Disturbed Areas Minus Mitigation Acreage Outside Solar Plant Site	22.1		

Solar Plant Site and Linear Facility Combined Totals	Total (Ac)
Permanent Disturbed Area	4,139.3
Disturbed Area (Temporary and Permanent)	4,169.3
Total Previously Mitigated Area	769.0
Permanent and Temporary Minus Total Previously Mitigated Area	3,400.3

NOTES:

[a] These acreages are based on the configuration as shown on the General Arrangement.
[b] These acreages are not included in totals because area is within land that would be affected by other solar plant site facilities.
[c] The temporary disturbance for gen-tie line and distribution line poles does not include the permanent disturbance or the portion of the spur road that would be coincident with the pole construction area.
[d] These lands are already disturbed and/or mitigated for and not included in the total acreage.
[e] This part of linear corridor will not need to be constructed until Unit 4 is built.

Assuming that required transmission upgrades and permits are in place and construction progresses as planned, the first phase of the modified 485 MW solar PV energy-generating Project could start construction on the Project site as early as mid-2014. Subsequent phases would be constructed in phased stages, moving across the site with potential overlap for the start of the next phase prior to completion of the previous phase, and would continue to support the commercial operation dates for the phases. The entire project is expected to be completed within 48 months of the start of construction of the first phase.

For ease of review, we have included the following list to identify the primary modifications to the Approved Project:

- The previously planned four power blocks (which each included a steam turbine, evaporation pond, auxiliary boiler, air-cooled condenser, and equipment) and structures have been eliminated.
- The Land Treatment Units for HTF have been eliminated.
- The HelioTrough energy collection systems and associated HTF piping systems have been eliminated and replaced with PV panels configured for either horizontal tracking or fixed tilt operations.
- The substation has been replaced by a switchyard which is located near the center of the disturbance area.
- The large assembly hall has been eliminated.
- The concrete batch plant has been eliminated.
- The natural gas line has been eliminated.
- The water treatment system has been reduced in size to accommodate a reduction in water usage. Consequently, the associated waste quantities have been reduced and the number of evaporation ponds have been reduced from eight ponds to two.
- The large drainage structures surrounding the site has been eliminated, although smaller drainage features may be required.
- The amount of mass grading has been greatly reduced.
- The Project footprint has been modified to allow transmission and access road corridors to accommodate the NextEra McCoy and the EDF projects proposed to the north of the BSPP.
- Water use during construction has been reduced from approximately 4,100 acre-feet (AF) to 700 to 1,200 AF.
- Water use during operations has been reduced from approximately 600 acre-feet per year (AFY) to between 30 to 40 AFY.

The list above largely encompasses the items that were eliminated or reduced by the switch in technology from parabolic trough/concentrating solar thermal to PV technology. There would also be a significant reduction in the Project footprint. There are new elements of the Modified Project related to the PV technology (e.g., inverters, solar panels, an O&M building, etc.). These elements and the currently proposed PV Project are described in greater detail in this section of the Petition.

2.2 PHOTOVOLTAIC TECHNOLOGY

The BSPP would involve the installation of PV modules with the capacity to generate a total of 485 MW of power under peak solar conditions. This Petition is based on current technology and installation methodology as well as cost and efficiency considerations.

Inverter hardware would be located in each Power Conversion Station (PCS), which would convert the direct current (DC) electric input into grid-quality AC electric output.

The PV modules that make up the arrays have the capability to convert the sun's energy into DC electricity, each producing a relatively small amount of electricity, about several hundred watts each at rated conditions. Modules are electrically connected in series and parallel arrangements. A series arrangement increases the collective output voltage and a parallel arrangement increases the current to the desired levels for the DC collection system.

The modules being considered for this Modified Project are produced by a number of manufacturers of both crystalline silicon and thin film modules. Brief descriptions of these technologies are included in Section 2.2.1. This technology is changing rapidly primarily in the areas of cost and efficiency. For reasons of availability to support the Modified Project delivery requirements and to allow NextEra Blythe Solar to capitalize on the latest technological advances, multiple manufacturing sources might be utilized.

At this time NextEra Blythe Solar has not selected whether it would install a fixed tilt or single axis tracking modular system or a combination of both systems. Refer to Section 2.2.2 for descriptions of these support systems. While both systems are similar in how they generate and distribute electricity, the orientation and technique for collection of the sun's energy are different.

2.2.1 Photovoltaic Modules

The solar PV modules, also referred to as panels, convert solar energy into DC electricity. Different materials display different electricity generation efficiencies; higher efficiency panels produce more electricity per given area, but cost more per panel area. Materials commonly used for PV solar cells include monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride (CdTe), and copper indium gallium selenide. Several of the PV cells currently available are manufactured from bulk materials that are cut into very thin wafers, i.e., between 180 to 240 micrometers thick. Others are constructed from thin-film layers. NextEra Blythe Solar is considering the installation of both polycrystalline and CdTe solar cells. Both technologies are proven and viable for utility-scale PV plants. Characteristics of typical panels are given in Table 2-2.

TABLE 2-2
TYPICAL PV PANEL CHARACTERISTICS

Typical Panel Physical and Electrical Characteristics	Thin Film (CdTe) (First Solar FS Series 3)	Polycrystalline (Yingli Solar YGE 300 Series)
Length	1.2 m	1.97 m
Width	0.6 m	0.99 m
Weight	12 kg	26.8 kg

Typical Panel Physical and Electrical Characteristics	Thin Film (CdTe) (First Solar FS Series 3)	Polycrystalline (Yingli Solar YGE 300 Series)
Cell Type	CdS/CdTe semiconductor, 154 active cells	72 multicrystalline cells
Frame Material	None	Anodized aluminum alloy, silver, clear
Cover Type	3.2 mm heat strengthened front glass laminated to 3.2 mm tempered black glass	Low-iron tempered glass
Nominal Power	92.5 W	300 W
Efficiency	~12.8%	~15.4%
Voltage at Pmax	47.7 V	36.7 V
Current at Pmax	1.94 A	8.17 A
Open Circuit Voltage	60.5 V	46.3 V
Short Circuit Current	2.11 A	8.77 A
Maximum System Voltage	1000 V DC	1000 V DC
Temperature Coefficient of Pmpp	-0.25%/°C	-0.45%/°C

Silicon is the traditional material choice for PV panel cells, and NextEra Blythe Solar is considering polycrystalline silicon PV modules for use at the BSPP. NextEra Blythe Solar is also considering the use of thin film CdTe panels as one of its technology options. A CdTe solar panel uses solar cells constructed in a thin semiconductor layer (also known as a "thin film") to absorb and convert sunlight into electricity. If thin film CdTe panels are used, NextEra Blythe Solar would ensure that the vendor offers a PV module recycling program through which any module may be returned for recycling.

The system would incorporate high-efficiency commercially available solar PV panels that are Underwriters Laboratory-listed or approved by another recognized testing laboratory. By design, the solar PV panels absorb sunlight to generate electrical output and, therefore, are manufactured with anti-reflective glass to maximize the electrical output capacity. In addition, due to the limited rotation angles, the solar PV panels are not designed for reflecting the sun's rays upon any ground-based observer off-site. These panels would be protected from impact by tempered glass, and would have factory applied ultraviolet and weather-resistant "quick connect" wire connectors.

PV modules can be mounted together in different configurations or "blocks" (also referred to as "arrays") depending on the equipment selected. The BSPP arrays primarily would be organized into approximately 2 MW blocks, with some additional arrays configured in smaller capacity blocks to utilize land space efficiently. Although the acreage of each block would depend on the technology, spacing, mounting equipment, and other design criteria subject to change in detailed engineering, each full-size 2 MW block is expected to cover approximately 15 acres.

Since the electrical ratings for the panels, inverters, and other PV equipment vary based on the manufacturer, the DC collection design also varies depending on the chosen

technology. The PV modules would be electrically connected in series, and groups of these series-connected modules would be connected by wire harnesses to the combiner boxes. The combiner boxes in turn feed an inverter in the PCS via DC cables. The PCS would be located within each block, and would be on concrete vaults, slabs, or pier foundations. The PCS would include the inverters and step-up transformers (SUTs) required for converting the low voltage DC electricity to medium voltage AC electricity. Refer to Section 2.2.4.1 for further descriptions of the DC collection system.

The transformers in the PCS step up the voltage from the inverter AC output to that required by the on-site AC collection system. The AC collection system conducts the electricity from each PCS at 34.5 kV to the feeder circuit breakers and the 34.5/230 kV unit SUTs for each 125 MW or 110MW unit. Overhead or underground lines then conduct the electricity from the SUTs to the on-site switchyard. The electricity is then routed to the CRS via the gen-tie line. Refer to Section 2.2.4.2 for further descriptions of the AC collection system.

2.2.2 Panel Supporting System

2.2.2.1 Fixed Tilt System

A fixed tilt racking system utilizes a metal framework structure or support table to which the modules are attached. The PV panels are mounted on the rack in a permanent "fixed" position tilted towards the south at approximately 30 degrees to optimize production throughout the year without any mechanical movement. These racks are simple, open "table" constructions. A fixed tilt system can generally follow the slope of the terrain which simplifies grading requirements. The support posts may vary in height above the ground surface to accommodate the variations in terrain. The total height of the structure with panels would be approximately 9 feet depending on the racking system configuration and tilt angle selected.

2.2.2.2 Single-Axis Tracking System

A single-axis tracking system optimizes production by rotating the panels to follow the path of the sun throughout the day. The central axis of the tracking structure is oriented north to south and is constructed to rotate the panels east to west while limiting self-shading between rows. The system utilizes a method called "back-tracking" which consists of rotating the panels back toward a more horizontal position to avoid shadowing between the adjacent panels in the early morning and late afternoon hours of operation.

Each tracking assembly consists of one or two steel torque tubes, supported by posts, on which rests the frames for the PV modules. Each tracker holds 30 to 90 PV modules mounted on this metal framework structure; the wide range is due to the variation in tracker and module technology. The steel structure would be able to withstand high-

wind conditions (up to 90 miles per hour), site-specific wind gust and aerodynamic pressure effects, and seismic events.

One of two types of single-axis tracking systems would be selected for the BSPP. Tracker Option 1 is a “ganged system” that would use one motor to control multiple rows of PV modules through a series of mechanical linkages and gearboxes. By comparison, Tracker Option 2, a stand-alone tracker system, would use a single motor and gearbox for each row of PV modules.

The drive unit typically consists of a bi-directional AC motor or a hydraulic system utilizing biodegradable fluid. The drive unit would be connected to an industrial-grade variable-frequency drive that translates commands from the control computer.

The tracker controller would be a self-contained industrial-grade control computer that would incorporate all of the software needed to operate the drive system. The controller would display a combination of calibration parameters and status values, providing field personnel with a user-friendly configuration and diagnostic interface. The controller monitor would enable field adjustment, calibration, and testing. The single-axis tracking control system also communicates with, and receives instructions from, the central control system via a Supervisory Control and Data Acquisition (SCADA) system.

2.2.2.3 System Foundations

Both single-axis tracking and fixed tilt mounting systems are supported by steel posts spaced approximately 10 feet apart. The support posts generally project 5 to 6 feet above the ground and are typically vibrational driven to an approximate depth of 8 to 10 feet into the ground depending on site geotechnical characteristics and racking system design. However, depending on the final PV technology and vendor selected as well as local soil conditions, the design of the support structures could vary. Typical installations of this type are constructed using steel piles or concrete foundations. Steel piles may be driven, screwed, or grouted. Driven steel pile foundations typically are galvanized and used where high load bearing capacities are required. The pile is driven using a hydraulic ram where up to two workers are required. Soil disturbance would be restricted to the pile insertion location with temporary disturbance from the hydraulic ram machinery, which is about the size of a small tractor. Screw piles, if used, would be driven into the ground with a truck-mounted auger requiring two or three workers. Screw piles create a similar soil disturbance footprint as driven piles. Grouted steel piles, if used, would require pre-drilling with auger equipment so that the pile could be inserted into the cleaned hole. The pile then would be grouted into place from bottom to top until grout flows out of the top of the hole. Soil disturbance would be the same as the previous steel pile descriptions with additional disturbance from the soil removal and insertion of grout at the pile location. Concrete foundations avoid ground penetration by withstanding the design loads from the weight of the concrete itself. Concrete requires

time to cure and can be pre-cast and transported to the site or poured in place for installation. Concrete foundations reduce the ground penetration, but increase the permanent disturbance. All driven post support structures are not considered permanent foundations, enabling complete removal when the BSPP is decommissioned.

2.2.3 Panel Access

The spacing between the rows of tracking units or fixed mounts is dependent on site-specific features and would be identified in the final design. NextEra Blythe Solar's preliminary configuration indicates the spacing allows for at least 10 feet of clearance for maintenance vehicles and panel access.

The PV arrays and PCS would be accessible by two access corridors, one in a north-south direction approximately every 3,000 feet of nominal 16 foot width and the other in an east-west alignment passing every PCS unit of nominal 24 foot width. These access corridors would consist of unpaved compacted road base and would be used only as necessary during O&M activities.

2.2.4 Solar Field DC Collection and Power Conversion

2.2.4.1 DC Collection

The PV modules would be electrically connected in series by the PV connectors and connected in parallel by wire harnesses that conduct DC electricity to the combiner boxes. Each combiner box would collect power from several rows of modules and feed a PCS via cables placed in covered underground trenches (or within above ground cable trays or conduits in limited circumstances where underground trenching is determined not to be practical). The DC trenches would be approximately 3 feet deep and from 1.5 to 2.5 feet wide. The bottom of each trench would be filled with clean fill surrounding the DC cables and the remainder of the trench would be back-filled with native soil and compacted to 90 percent (95 percent when crossing under roadways). Power screeners could be used on site for a limited period of time (less than 1 year) to extract the required clean fill from native soils for use as bedding material in the trenches. A power screener is a motorized piece of equipment that uses moving screens to filter soils to a particular granularity.

2.2.4.2 AC Collection

Each PCS comprises an inverter package consisting of multiple inverters connected to adjacent transformer(s). An overhead shade would cover the inverters or a common equipment enclosure would include multiple inverters. The individual inverter packages would be approximately 7 feet tall, and the transformer exterior to the enclosure would be approximately 6.5 feet tall. The overhead shade would be 10 to 12 feet tall. The equipment enclosure, if utilized, would be up to approximately 35 feet long by 10 feet

wide by 10 feet tall. In the PCS, the inverters would change the DC output from the combiner boxes to AC electricity. Integrated with the inverter, a data acquisition system (DAS) would utilize a data logger and sensors to record AC power output. Other integrated components may include equipment to record weather conditions, including ambient temperature measured in degrees Celsius (°C), incoming solar radiation measured in watts per square meter, and wind speed measured in meters per second. The DAS would enable system data transfer and performance monitoring via the proposed O&M facility.

The resulting AC current from each individual inverter would be routed through underground AC cables (or within above ground conduits in limited circumstances where underground trenching is determined not to be practical) to an oil-filled, medium voltage, step-up transformer positioned within secondary containment. Based on preliminary design, the 265 volt output from an inverter would be stepped up (increased) to the desired AC collection system voltage of 34.5 kV by the transformer. The medium voltage transformer would be placed on a pre-cast concrete pad or other foundation delivered by flatbed truck during construction.

Multiple PCS blocks (approximately 10 MW total) would form a lateral configuration and transmit the AC power at 34.5 kV via aboveground double circuit monopoles or underground lines in covered trenches (or within aboveground conduits in limited circumstances where underground trenching is determined not to be practical). Lateral conductors would be combined into an aboveground or underground feeder line (24 to 26 MW) that would transmit the AC power to the feeder circuit breakers and SUTs. Each SUT would step up the voltage to 230 kV before transmitting the power to the on-site switchyard in either aboveground or underground lines. As applicable, AC trenches would be approximately 3 feet deep and from 8 inches to 6.5 feet wide and also would be used to house fiber optic cables for communication. The bottoms of the trenches would be filled with sand surrounding the fiber optic cables, and the remainder of the trench would be back-filled with native soil and compacted.

The on-site electrical collection system is designed to minimize electrical losses within the BSPP prior to delivery to the on-site switchyard. The on-site switchyard would include a series of switches and circuit breakers that switch or provide disconnect service for the electricity before the power is conducted along the 230 kV interconnect with the SCE regional transmission grid at the CRS via the 230 kV gen-tie line.

2.3 SITE ACCESS

The Modified Project would utilize the same existing roads to reach the site as described in the Final Decision. Access to the BSPP would be via a new road (Dracker Drive) heading north from the frontage road (Black Rock Road). Dracker Drive would be accessed from a section of Black Rock Road, along I-10, from the plant access road to

the Airport/Mesa Drive exit. As part of the Notice to Proceed issued for BSPP Phase 1A of the CSP design, Dracker Drive has been constructed in dirt form from Black Rock Road to the approximate mid-point of the solar plant site, and this stretch of existing dirt road would be retained and improved for access to the Modified Project. The road would be paved from the entrance off of Black Rock Road north to the gates opening to Unit 1 and Unit 4.

2.4 TRANSMISSION SYSTEM INTERCONNECTION

The gen-tie route remains largely unchanged from the Approved Project. It would proceed in a southerly direction, cross over I-10, and turn westward to the CRS, which is currently under construction. The metering point would be located in the switchyard on the Project site. The gen-tie line would be owned and operated by NextEra Blythe Solar.

The 230 kV double circuit transmission line would be constructed on self-supporting monopole structures of heights up to approximately 145 feet, except where Federal Aviation Administration (FAA) regulations and any applicable Riverside County Airport Land Use Commission (RCALUC) guidelines near the airport require shorter and/or H-frame structures. An area of approximately 50 by 50 feet (0.06 acre) per structure may be temporarily disturbed during construction. An area of 100 by 300 feet would be temporarily disturbed for the pull sites.

The required ROW width for the gen-tie is approximately 120 feet. Where larger H-frame structures are used it is approximately 250 feet. The average span length between the transmission structures vary from approximately 800 feet for the 70-foot tall H-frame structures up to 1,200 feet for the self-supporting tubular steel 145-foot tall monopole structures. The gen-tie line would be constructed using “strong” tubular towers at the cornering points of the line, which would have sufficient strength without guy wires. The former owner of BSPP spent significant time in 2010 working with the FAA and RCALUC to minimize aviation-related impacts created by the Project and its gen-tie structures. The variation in height and other items were incorporated into the gen-tie design to accommodate FAA and RCALUC concerns. It should be noted that the change in technology to PV would reduce or eliminate other aviation-related concerns. For example, the removal of the air cooled condensers would eliminate prior concerns relating to upward thermal plume potential effects on aircraft. The switch in technology also removes the presence of HTF at the site which significantly reduces the fire hazards of the Modified Project.

The Modified Project was included in the “Transition Cluster” in the new Generation Interconnection Process Reform process. The Phase One Study results for the Transition Cluster were released in August 2009. The Phase Two Study results for the Transition Cluster were released in July 2010. California Independent System Operator

(CAISO), SCE, and the Applicant executed a LGIA in November 2010, which was approved by the Federal Energy Regulatory Commission (FERC) in March 2011. SCE and CAISO have completed studying the effect of switching solar technologies and whether the change impacts the previous interconnection studies and have concluded that 485 MW of PV is acceptable. The LGIA would need to be amended to address the technology switch. The LGIA amendment, once executed, would require FERC review and approval.

2.5 ANCILLARY FACILITIES

2.5.1 Telecommunications Facilities

The Modified Project switchyard would require the same new telecommunication infrastructure as the originally Approved Project. The telecommunication facilities would be installed to provide a protective relay circuit and a SCADA circuit together with data and telephone services. Voice and data communications for plant operations would be installed for use during construction and operations. The routing for this cable would end at the existing infrastructure near Mesa Drive. In addition, the BSPP has two other telecommunications lines required by CAISO to provide operational data to the CRS. The primary transmission-related telecommunications line would be strung overhead along the same poles as the 230 kV gen-tie line to the CRS. The redundant transmission-related telecommunications cable would be buried cable similar to the BSPP's telecommunications cable. The routing for both of the buried telecommunications cables would be adjacent to the site access road for the portion north of I-10. The redundant telecommunications line continues south of I-10 to the CRS following the route of the gen-tie line, while the BSPP's telecommunications cable follows Black Rock Road to Mesa Drive.

2.5.2 Operations and Maintenance Facility

The BSPP would likely include an approximately 3,000-square-foot O&M building located on BLM-administered land near the center of the site and would be shared for services to all units. The building would provide an administration area, a work area for performing minor repairs, and a storage area for spare parts, transformer oil, and other incidental chemicals. The administration area would be air conditioned and include offices, conference rooms, a break room, rest rooms, and locker rooms with showers.

The building would be supported on reinforced concrete mat foundations or individual spread footings as determined during detailed design. Excavation for the footings would be approximately 2 feet deep. Excavation within the perimeter of the building would be approximately 1 foot deep. An aggregate or stone base would be laid after excavation. The floor would consist of a 6-inch reinforced concrete slab. Concrete for this slab would come from the Blythe area.

The O&M building would be a pre-engineered metal building approximately 17 feet high at its peak with a neutral-colored metal siding and roof to minimize visual impact. The building's maintenance area would include roll-up doors to provide equipment access as well as personnel access doors. An approximately 10,000-square-foot parking area would be provided at the O&M building.

2.5.3 Meteorological Station

NextEra Blythe Solar would not modify its approved meteorological station.

2.5.4 Anemometers

Depending on the final design of the equipment, the solar arrays may be installed with tracker anemometer towers, which measure and communicate wind speed data to the tracker controllers for solar array panel tracker positioning in the event of high winds. Each tower would measure approximately 30 feet in height, and would be installed within the arrays within the facility site.

2.5.5 Fencing and Site Security

For public safety and site security, the BSPP would have fencing around the site and access would be controlled via gates located at the entrances to the facility consistent with the Approved Project. The two main site gates (located at Units 1 and 4) would be either a motor-operated swing or rolling-type security access gate, and would be monitored through a security camera, swipe card, or other mechanism that would control and monitor access. There would be a guard shack at the main facility gate during construction. Access through the main gates would be controlled during construction and operation of the BSPP to prevent unauthorized access to the solar plant site. All facility personnel, contractors, and visitors would be logged in and out of the facility. A secondary access gate, similar in construction to the main gate, would be used for emergency purposes only. A fire department Knox Box or other access device and emergency contact placard would be provided at the main gate and secondary access gate to provide emergency access.

Fencing would be installed around the solar plant site perimeter, substations, and around the evaporation pond described in accordance with the existing Conditions of Certification. Individual units may be fenced with perimeter fencing as the construction and operation of the facility is phased. Security fencing would be chain-link, approximately 8 feet tall, with 3-strand barbed wire. Some modifications would be needed in areas of storm water inflow and outflow from the solar field to allow for high flow events. The security fencing would be constructed slightly inside the solar plant site boundary to allow room for on-foot fence maintenance on the outside of the fence if necessary. Fencing would be designed to resist all wind or other loads imposed on the fence. Tortoise fencing would be installed 1 foot below the ground surface and 2 feet

above the ground surface, using a fencing type recommended by the United States Fish and Wildlife Service (USFWS) and in accordance with the existing Conditions of Certification.

2.5.6 Temporary Construction Workspace, Yards, and Staging Areas

Temporary construction facilities would be built for materials storage, storage of equipment, for field fabrication facilities, and a construction office complex for employee work areas on the Project during construction consistent with the Approved Project. Additionally, there would be a number of construction staging areas within the site boundaries that would be utilized throughout the approximately 48-month Project construction period and then be decommissioned and/or replaced by arrays. Construction area lighting would be provided.

The staging areas would include material laydown and storage areas and an equipment assembly area. During construction, the area near the location of the O&M facility would also contain a guard shack, construction trailers, construction worker parking, and portable toilet facilities that would serve the Project's sanitation needs during construction. Temporary construction fencing would surround this area and the guard shack would be manned to provide security during construction. Additionally, the Project would no longer include the large assembly hall structure originally planned to assemble the HelioTrough structures.

In addition to the permanent plant roads and parking, construction roads and parking would be required to provide access to construction facilities and the laydown area. Construction parking space would be provided near the construction office complex. These temporary roads may be all-weather gravel surfaced and of sufficient width and location to accommodate efficient use and traffic pattern. The parking area would have barriers to control parking pattern and locations.

2.5.7 Distribution/Construction Power

The proposed SCE distribution line would provide construction power and electrical service to the O & M building, in the same manner as the Approved Project. See Figure 2-2 for the general location of the distribution line.

2.6 FIRE PROTECTION

Fires are most likely to be introduced from human activity, and also could occur as a result of lightning strikes or equipment malfunctions. Project-related fire-protection activities would be taken to limit personnel injury, property loss, and Project downtime resulting from a fire. During construction, a water truck or other portable trailer-mounted water tank would be kept on-site and available to workers for use in extinguishing small man-made fires. Fire watches would be required during hot work on-site. An Emergency

Action Plan (EAP) would designate responsibilities and actions to be taken in the event of a fire or other emergency during construction. The EAP, including fire prevention and suppression, and a worker safety plan would be provided to BLM and local fire departments for approval before the receipt of a Notice to Proceed. During O&M of the BSPP, fire protection systems for the solar plant site would include a fire protection water system for protection of the O&M building, including portable fire extinguishers and possibly hydrants. The fire protection water system would be supplied from an approximately 20,000 gallon raw and fire water storage tank located on the solar plant site near the O&M area.

To decrease the risk of fire during O&M of the Project, all vegetation underneath the panels would be managed via either mechanical mowing/trimming or with a BLM-approved herbicide in accordance with guidance provided in the Final *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)* and the *Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report* (PER) (BLM 2007).[1] A pre-emergent herbicide would be applied in the spring, and spot foliar applications may be used throughout the year to manage invasive vegetation.

The Final Decision outlines that Riverside County Fire Department would provide fire protection services to the BSPP. With the elimination of the risks associated with use of HTF, the impacts to Riverside County would be reduced from the previous analysis, and it may be that the City of Blythe Fire Department can adequately provide fire protection services. NextEra Blythe Solar will work with the Riverside County Fire Department and/or the City of Blythe Fire Department to negotiate an appropriate mitigation fee, if needed, to offset the impacts to the applicable fire department(s) from the reduced risk posed by the Modified Project.

2.7 WATER SUPPLY AND USAGE

2.7.1 Water Supply and Use

The BSPP Final Decision allowed the construction of several wells to produce up to 600 AFY for operations and up to 4,100 AF for construction. Up to three wells are

[1] The Record of Decision associated with the PER (72 FR 57065-01), published October 5, 2007, outlines the herbicides that are approved for use on public lands, including 14 herbicides with the following USEPA registered active ingredients: 2, 4-D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, and triclopyr identifies the states where the active ingredients are approved. It also identified six herbicide active ingredients that are not permitted for use on BLM lands unless a need is shown by the BLM and updated risk assessments for human health and ecological risks are assessed. The six precluded active ingredients are: 2, 4-DP, asulam, atrazine, fosamine, mefluidide, and simazine.

anticipated for the Modified Project and would be constructed in the same manner as outlined in the Final Decision.

Water from the proposed wells would be tested for and meet the domestic water quality and monitoring standards for constituents as required by the California Code of Regulations (22 Cal. Code Regs. §64400.80 et seq.). Regulated wells must be sampled for bacteriological quality once a month and the results submitted to the California Department of Health Services (DHS). The wells also must be monitored for inorganic chemicals once and organic chemicals quarterly during the year as designated by the DHS based on historical monitoring frequency and laboratory capacity. NextEra Blythe Solar would sample and conduct groundwater quality monitoring consistent with the Waste Discharge Requirements provided in Appendix H.

2.7.2 Construction-related Water Needs

Construction-related water use would support site preparation and grading activities. During earthwork for the grading of access roads, foundations, equipment pads, and other components, the primary uses of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for building foundations and other minor uses. Subsequent to the earthwork activities, the primary water use would be for dust suppression. During the approximately 48-month construction period for all units, an estimated total of between 700 and 1,200 AF of water would be needed for such uses as soil compaction, dust control, and sanitary needs for construction of the BSPP, depending on the configuration selected. The majority of the construction water use would occur during site earthwork operations. Water would be needed for dust abatement and moisture conditioning of soils to facilitate overland travel during construction of the transmission line for the various alternatives. Water would be stored on-site during construction using either temporary construction ponds or tanks.

Drinking (potable) water would be supplied for construction workers on-site, and is estimated to be approximately 10,000 gallons per month (approximately 0.5 AFY), varying seasonally and by work activities. The potable water could be brought to the site by tanker truck, or groundwater could be used with a package water treatment system to treat the water to meet potable standards.

2.7.3 Operation and Maintenance-related Water Needs

Water quality is expected to be unsuitable for potable use without treatment since it contains between 730 and 3,100 milligrams per liter of total dissolved solids. Consequently, NextEra Blythe Solar is considering options for treatment of groundwater or the importation of trucked potable water to meet the Modified Project's potable water requirements for O&M. If the groundwater option is selected, water would be treated

with a conventional package water treatment system to assure that any drinking water meets potable standards.

Either a reverse osmosis/electrodeionization (EDI) system or a deep bed demineralizer system would be used for other (non-drinking water) purposes. The water treatment system design has not been developed, but could include either a trailer-mounted water treatment system or a free-standing facility. The water treatment system would supply water for the BSPP for the purposes and in the amounts indicated in Table 2-3.

A trailer-mounted water treatment system is a totally enclosed, self-contained, containerized water treatment system. This system would include filters and demineralizer vessels. These systems typically are leased with a service contract, contain all the necessary supplies for operation, and are taken off-site for the regular regeneration and periodic maintenance that is required. No wastewater discharge is expected with the trailer-mounted treatment system.

TABLE 2-3
OPERATION AND MAINTENANCE-RELATED WATER USE

Water Use		PV Module Cleaning [(a)]				Misc O&M Total [(b)]	Potable Total [(c)]
		Per Unit		Total Plant			
		Min	Max	Min	Max		
Annualized Average	Rate (gpd)	7,000	7,800	28,000	32,000	3,500	450
Estimated Peak	Rate (gpd)	24,000	26,900	58,400	64,900	20,000	500-600
Estimated Annual	Use (AFY)	7.5	9.0	25	35	4.5	0.5

NOTES:

(a) Water consumption based on the volume of water required to wash the panels approximately twice per year

(b) Miscellaneous O&M activities include fire water, dust suppression, etc.

(c) Potable water used based on 7 day work week with 20 on-site personnel

The water treatment area would be constructed near the middle of the solar plant site which would contain the water treatment and storage equipment. It would be an area up to a maximum of 3 acres excluding any area needed for the evaporation ponds if utilized. A free-standing water treatment facility would contain different equipment from the trailer-mounted system. It would be constructed on-site in an enclosure for permanent use. The enclosure would be a pre-fabricated steel building on a concrete foundation with a maximum height of 17 feet. The water treatment equipment would include pumps, filters, biocide or ozone injection, and a reverse osmosis/EDI system. The water treatment facility would house the filter replacements and tools needed for periodic maintenance of the system. Wastewater discharge would be non-hazardous, have a maximum quantity of up to 60 gallons per minute (gpm), and be produced primarily from the reverse osmosis reject. One or more on-site evaporation ponds (up to 12 acres total) would be required for disposal of the wastewater and would be

constructed, operated and maintained, and ultimately removed from the water treatment area within the solar plant site boundary. The evaporation ponds would be netted if required by the regulatory agencies.

There would be three tanks on-site for the storage of the raw and fire water, potable water, and demineralized water for the BSPP. The raw water tank storage capacity also would provide the fire water supply. This tank would hold approximately 20,000 gallons. It would be constructed of bolted or welded steel and painted with a non-reflective coating to blend with the surrounding environment. The potable water tank would be of similar construction with a maximum volume of 7,500 gallons. The demineralized water tanks with a total capacity of up to 100,000 gallons would store water to be used for panel washing. They would be stainless steel and painted with a non-reflective coating.

The panels would be cleaned on an as-needed basis, depending on the frequency of rainfall, proximity of arrays to airborne particulates, and other factors. NextEra Blythe Solar assumes that panel washing would occur in the fall and spring and take approximately 20 days to complete per unit per wash. Panel washing for all units could take a total of 150 to 160 days per year to complete. Approximately 25 to 35 AFY for the entire Modified Project would be required to wash the panels.

Based on the anticipated uses (including drinking water, showers, restroom facilities, panel washing, dust suppression, and fire supply, among other uses), the estimated quantity of water needed for O&M of the BSPP would be approximately 4.5 AFY, including a total of 0.5 AFY of potable water. The primary use of water during O&M-related activities would be for panel washing and dust control (the proposed PV technology requires no water for the generation of electricity).

A BLM-approved dust suppressant would be applied to control dust. Water could be used to supplement the dust suppressant in some areas on a limited basis; the amount of water used depends on the type of suppressant used and the manufacturer's recommendations. The concentrate from a reverse osmosis treatment unit (if required for on-site water treatment) might be used for dust control by blending it with water from the on-site water wells.

2.8 CONSTRUCTION

This section describes the construction activities of the Modified Project. The construction of the Project would begin once all applicable approvals and permits have been obtained and is currently anticipated to be as early as June 2014. After the preconstruction surveys, construction mobilization, and site preparation are completed, construction of the BSPP and gen-tie line would begin. Work would be completed in phased stages moving across the site so that completion of one phase is closely followed by the beginning of the next. Construction of all of the phases is anticipated to take approximately 48 months from the commencement of the construction process to

completion of the BSPP and gen-tie line. Figure 2-3 shows the construction phases and project features associated with the phases.

2.8.1 Construction Workforce Numbers

Typical construction work schedules are expected to be between 8 and 12 hours per day, Monday through Friday, from 7:00 am to 10:00 pm. The work schedule may be modified throughout the year to account for changing weather conditions (e.g., starting the workday earlier in the summer months to avoid work during the hottest part of the day for health and safety reasons). In the event that construction work takes place outside these typical hours, activities would comply with Riverside County standards for construction noise levels. For safety reasons, certain construction tasks, including final electrical terminations, must be performed after dark when no energy is being produced. The BSPP would use restricted nighttime task lighting during construction. Sufficient lighting would be used in order to both provide a safe workplace and maintain energy efficiency, and lights would be focused downward, shielded, and directed toward the interior of the site to minimize light exposure to areas outside the construction area.

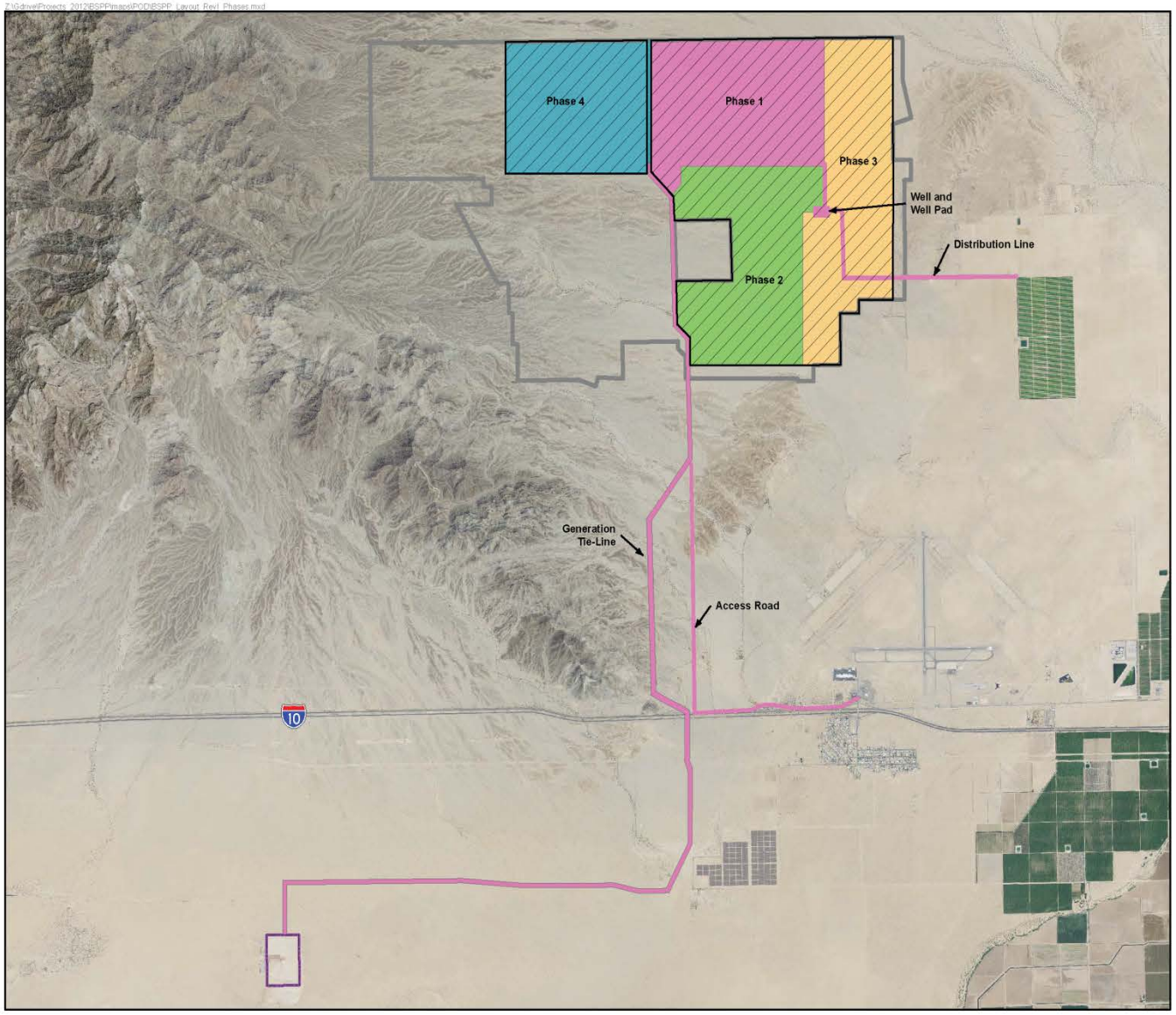
The construction would take place in phases and it is expected that the grading of the next phase would take place shortly after erection of the previous phase begins. A preliminary construction schedule is presented with the air quality emissions calculations in Appendix E.

During Project construction, the workforce is expected to average approximately 250 to 430 employees over the 48-month construction period, with a peak workforce of approximately 619 employees during Months 20 through 22 of the construction period. The Project construction workforce would be recruited from within Riverside County and elsewhere in the surrounding region to the extent practicable.

2.8.2 Construction Equipment/Vehicles

Most construction equipment and vehicles would be brought to the BSPP at the beginning of the construction process during construction mobilization and would remain on site throughout the duration of the construction activities for which they were needed. Generally, the equipment and vehicles would not be driven on public roads while in use for the Project. In addition to construction worker commuting vehicles, as discussed above, construction traffic would include periodic truck deliveries of materials and supplies, recyclables, trash, and other truck shipments.

Truck access to the site would be from I-10 and then via Mesa Drive Road to Black Rock Road. Construction truck deliveries and shipments would typically avoid the peak traffic hours in the morning and evening, so it is unlikely that Project deliveries would represent a substantial increase in traffic volumes during peak commuting hours. Materials would typically be delivered starting 2 weeks before the start of the associated



BLYTHE SOLAR
POWER PROJECT
RIVERSIDE COUNTY, CA

Legend

- Approved Solar Thermal Project Boundary
- Modified PV Solar Plant Site
  4,070 acres (reduced from 6,831 acres)
- SCE Colorado River Substation

Project Phasing

- Phase 1
- Phase 2
- Phase 3
- Phase 4

0 2,500 5,000 10,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: USDA, TTEC

FIGURE 2-3
PROJECT PHASING

TETRA TECH

task with the exception of electrical gear (PCSs, PV combining switchgear, etc.), which would be drop-shipped just prior to installation. An estimate of the types of construction equipment is presented in Appendix E.

2.8.3 Site Clearing, Grading, and Compaction

NextEra Blythe Solar would utilize site preparation techniques that adequately prepare the site for safe and efficient and operation of PV arrays while allowing water to flow across the site with negligible impact on surface water flow upstream and downstream of the site. The planned approach to Project site preparation is primarily for only clearing and mowing of the site with minimal overall mass grading. In select areas the limited use of "disc and roll" and micrograding techniques may be utilized, reflecting the results of field testing of various site preparation techniques at an off-site location by one of the PV manufacturers. Large scale grading would only be used in areas where site topography requires smoothing for external fencelines and roads or where grading is needed for buildings or other Project structures. The descriptions below reflect the worst case grading scenario.

2.8.3.1 Clearing

Vegetation would be cleared from roadways, access ways, and where concrete foundations are used for inverter equipment, substations, and the O&M building. Vegetation would be cleared for construction of the drainage controls. Vegetation would be mowed as necessary in the remainder of the solar plant site. Organic matter would be mulched and redistributed within the construction area (except in trenches and under equipment foundations). Plant root systems would be left in place to provide soil stability except where grading and trenching are required for placement of solar module foundations, underground electric lines, inverter and transformer pads, road and access ways, and other facilities. During the site clearing process, the site would also be cleared of refuse, as necessary. Refuse materials encountered would be recycled or disposed.

2.8.3.2 Grading

The cut and fill depths across the site would be minimized, and it is expected that no import or export of soil material would be required. Preliminary conservative grading estimates are presented below in Table 2-4, which are based on our interpretation of the Preliminary Geotechnical Investigation performed for the Approved Project by Kleinfelder dated September 23, 2009.

TABLE 2-4
ESTIMATED GRADING

Unit	Cut (cubic yards)[ab]	Fill (cubic yards)
1	181,400	129,400
2	113,700	91,000
3	114,000	91,200
4	99,400	79,500
Total	508,500	391,100

NOTE:

a Excess cut would be dispersed on site at any localized low spots within the solar field that do not significantly impact surface hydrology.

b The cut volumes include the soil that would be over excavated, scarified and left in place for all roads per our interpretation of the Kleinfelder Preliminary Geotechnical Investigation dated September 23, 2009. The volume of cut that is scarified and left in place accounts for 334,400 CY of the total 508,500 CY of cut volume.

The estimates of cut and fill in Table 2-4 are much less than the Approved Project which involved cut and fill volumes of approximately 8.3 million cubic yards. Any excess cut would be dispersed on site at any localized low spots within the solar field so that the total amount of cut and fill would be balanced on site. Appendix B contains the preliminary Grading and Drainage Plan.

In dispersed sections of the solar array field, there would be limited use of scrapers to perform micrograding. This technique is referred to as "isolated cut/fill." In general, portions of the site would be contoured to a smooth grade; the macro-level topography and storm water drainage would remain unchanged. This technique would only be utilized in areas where existing grade cannot accommodate perimeter fencing, roads, or other equipment or structures.

Work over the grading period would typically be paced so that grading of an area takes place shortly before trenching and post installation are ready to begin. This would minimize the area of open, uncovered ground present at any one time during construction, and thereby minimize dust and erosion issues.

2.8.3.3 Erosion Control

The Modified Project would utilize site preparation techniques that allow water to sheet flow across the site with negligible impact on surface water flow upstream and downstream of the site.

Based on a preliminary grading plan, NextEra Blythe Solar commissioned a hydrologic evaluation contained in Appendix C. NextEra Blythe Solar's final design would implement site design and protective erosion and drainage control design measures during construction and operation that would minimize dust and erosion issues. Storm water flow would be managed to prevent downstream erosion and channelization.

Minimal grading, erosion control design features, storm water mitigation measures, and other protective measures (including minimizing disturbance and compaction to the extent feasible) would enable historic levels of runoff off site to be maintained at the BSPP and in downstream areas. While the final grading design has not been completed, the amount of grading is considerably less than the Approved Project and there is no need for the large drainage structures that were originally designed for the Approved Project.

NextEra Blythe Solar would prepare and implement a construction Drainage, Erosion and Sediment Control Plan (DESCP) prior to the commencement of soil disturbance activities associated with Project construction. The DESCP would describe construction Best Management Practices (BMPs) to manage storm water on the site to both protect the site and to minimize downstream erosion and sedimentation.

Several erosion control measures are planned for implementation during construction including stabilization of the heavily-used construction entrance area, employing a concrete wash-out area, as needed, and tire washes near the entrance to existing roadways. Silt fences are proposed for erosion control along neighboring properties.

The approximate percentage of the BSPP site that would be covered with impervious surfaces (inverter foundations, etc.) would constitute a fraction of 1 percent of the total surface area of the site. The final site plan would be based on a detailed topographic survey of the site, as well as detailed hydrologic and topographic studies that would be performed as a part of the permitting and engineering design process.

2.8.4 System Installation

Depending on the final PV technology and vendor selected, the design of the tracking support structures could vary. Typical installations of this type are constructed using steel piles or concrete foundations. Steel piles may be driven, screwed, or grouted. Driven steel pile foundations typically are galvanized and used where high load bearing capacities are required. The pile is driven using a hydraulic ram where up to two workers are required. Soil disturbance would be restricted to the pile insertion location with temporary disturbance from the hydraulic ram machinery, which is about the size of a small tractor. Screw piles, if used, would be driven into the ground with a truck-mounted auger requiring two or three personnel. Screw piles create a similar soil disturbance footprint as driven piles. Grouted steel piles, if used, would require pre-drilling with auger equipment so that the pile could be inserted into the cleaned hole. The pile then would be grouted into place from bottom to top until grout flows out of the top of the hole. Soil disturbance would be the same as the previous steel pile descriptions with additional disturbance from the soil removal and insertion of grout at the pile location. Concrete foundations avoid ground penetration by withstanding the design loads from the weight of the concrete itself. Concrete requires time to cure and

can be pre-cast and transported to the site or poured in place for installation. Concrete foundations reduce the ground penetration, but increase the permanent disturbance.

The design method and installation time of the support structures would depend on the support structure and block design with driven piles being the fastest preferred installation method. Final construction and installation details would be determined in the detailed design of the Project.

Solar PV panels would be manufactured off-site and shipped to the site ready for installation. Concrete pads for the drive motors, if utilized, would be either pre-cast or post and brought to the site via flatbed truck. Once most of the components have been placed on their respective foundations, the electricians and instrumentation installers would run the electrical cabling throughout the solar field. After the equipment is connected, electrical service would be verified, motors checked, and control logic verified. As the solar arrays are installed, the balance of the systems would continue to be constructed and installed and the electrical power and instrumentation would be placed. Once all of the individual systems have been tested, integrated testing of the BSPP unit would occur.

2.9 PROJECT OPERATION AND MAINTENANCE

2.9.1 Operation and Maintenance Workforce

Approximately 15 to 20 permanent, full-time personnel would be employed at the solar plant site during daytime working hours assuming all units are operational. Temporary personnel would be employed, as needed, during seasonal periods when panel washing is required. Monthly visual inspections and annual (minimum) preventive maintenance would be performed. In accordance with United States Department of Labor, Occupational Safety and Health Administration safety regulations, at least two qualified personnel would be present during all energized electrical maintenance activities at the facility. Site security systems would be monitored regularly by on-site personnel and an off-site 24-hour Remote Operations Center.

2.9.2 Automated Facility Control and Monitoring System

The proposed facility control and monitoring system would have two primary components: an on-site SCADA system and the accompanying sensor network. The on-site SCADA system would offer near real-time readings of the monitored devices, as well as control capabilities for the devices where applicable. Off-site monitoring/data trending systems would collect historical data for remote monitoring and analysis. For example, personnel at the Remote Operations Center would provide continuous 24/7/365 monitoring coverage of Project facilities and would respond to real-time alerts and system upsets using advanced monitoring applications that reside on the servers in their network.

2.9.3 Panel Washing

PV panel washing would be performed by seasonal maintenance crews in the fall and spring, taking approximately 20 to 40 days to complete each unit. Approximately 50,000 gallons per day (gpd) per unit would be required for this purpose. Several types of systems are currently available; most involve spraying filtered water onto the modules from a portable tank mounted in the bed of a pickup truck. Sometimes brushes, rods, or circular cleaning heads are used to remove debris. Surfactants would not be used in these procedures. The process water would be allowed to run off the modules and evaporate or percolate into the ground.

2.9.4 Road Maintenance

Paved roads would be maintained to preserve the asphalt surface from degradation. Maintenance would include seal coating the asphalt surface every 2 to 5 years to prevent decay and oxidization. Potholes or other damage would be repaired as soon as practical.

Unpaved roads would be maintained regularly to control the flow of water on and around the road, remove obstacles, and maintain a solid surface. Maintenance would be completed by conducting regular surveys to inspect the conditions of the road surfaces; blading, grading, or compacting the road surfaces to preserve a minimally sloped and smooth planed surface; and applying dust palliatives or aggregate base as needed to reduce dust and erosion.

2.10 HAZARDOUS MATERIALS MANAGEMENT

2.10.1 Waste and Hazardous Materials Management

2.10.1.1 Wastewater

Two separate wastewater collection systems would be provided as part of the Modified Project: one for sanitary wastes and another to address the water treatment system wastewater.

The sanitary wastewater system would collect sanitary wastewater at the O&M building. Portable chemical toilets would be provided for workers in the solar fields. The sanitary wastewater from sinks, toilets, showers, other sanitary facilities in the O&M building would be discharged to a sanitary septic system and on-site leach field. The septic system would be designed and permitted in accordance with state and county regulations.

On-site water treatment would discharge minimal wastewater (up to 60 gpm). The Final Decision allows for each power block to have two 4-acre evaporation ponds for a total of eight 4-acre evaporation ponds. Waste Discharge Requirements for the ponds were

included in the Final Decision and suggested revisions to those requirements are included in Appendix H. Based on analysis of need for the Modified Project, the BSPP could require up to a total of 12 acres of evaporation ponds. The evaporation ponds would be located near the water treatment area and would be netted if required by the regulatory agencies.

The average pond depth design could be up to 8 feet and residual precipitated solids would be removed approximately every 8 to 10 years, as needed, to maintain a solids depth no greater than 3 feet for operational and safety purposes. The precipitated solids would be sampled and analyzed to meet the characterization requirements of the receiving disposal facility. The characteristics of the precipitated solids would determine the transportation and disposal methodology. It is anticipated the pond solids and other non-hazardous wastes would be classified as Class II non-hazardous industrial waste. Pond solids would be tested using appropriate test methods in advance of removal from the evaporation ponds to confirm this determination; however, preliminary estimates show the material would be non-hazardous.

2.10.1.2 Solid (Non-Hazardous) Waste

Construction, operation, maintenance, and decommissioning of the BSPP would generate non-hazardous solid wastes typical of power generation or other industrial facilities. Solar plant-related wastes generated during all phases of the Project would include oily rags, worn or broken metal and machine parts, defective or broken electrical materials, other scrap metal and plastic, insulation material, empty containers, paper, glass, and other miscellaneous solid wastes including the typical refuse generated by workers. These materials would be disposed by means of contracted refuse collection and recycling services. Waste collection and disposal would be in accordance with applicable regulatory requirements to minimize health and safety effects.

Information on universal wastes anticipated to be generated during Project construction is provided in Table 2-5. Universal wastes and unusable materials would be handled, stored, and managed per California Universal Waste requirements.

O&M of the Project would generate sanitary wastewater, non-hazardous wastes, and require small quantities of hazardous wastes for use and consumption. O&M of the Project's linear facilities (e.g., the gen-tie line) would generate minimal quantities of waste. The types of waste and their estimated volumes are summarized in Table 2-6.

Facility construction, operation, maintenance, and decommissioning would generate wastes that require proper management and in some cases off-site disposal. There are seven permitted Class III landfills located in the county within approximately 145 miles of the Project site. There are two major permitted Class I hazardous waste landfills located in California, located approximately 350 and 400 road miles from the site, respectively.

TABLE 2-5
SUMMARY OF CONSTRUCTION WASTE STREAMS USAGE, STORAGE, AND MANAGEMENT METHODS

Waste Stream and Classification[a]	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	On-Site Treatment	Waste Management Method/Off-Site Treatment
Construction waste – Hazardous	Empty hazardous material containers	1 cubic yard per week (cy/wk)	Intermittent	None. Accumulate on site for <90 days	Return to vendor or dispose at permitted hazardous waste disposal facility
Construction waste – Hazardous	Solvents/cleaning chemicals, used oil, paint, oily rags	175 gallons	Every 90 days	None. Accumulate on site for <90 days	Recycle or use for energy recovery
Spent batteries – Universal Waste	Lead acid, alkaline type	20 in 2 years	Intermittent	None. Accumulate on site for <90 days	Recycle
Construction waste – Non-hazardous	Scrap wood, concrete, steel, glass, plastic, paper	40 cy/wk	Intermittent	None	Recycle wherever possible, otherwise dispose to Class III landfill
Sanitary waste – Non-hazardous	Portable Chemical Toilets – Sanitary Waste	200 gallons/ day	Periodically pumped to tanker truck by licensed contractors	None	Ship to sanitary wastewater treatment plant
Office waste – Non-hazardous	Paper, aluminum, food	1 cy/wk	Intermittent	None	Recycle or dispose to Class III landfill

NOTE:
a Classification under 22 California Code of Regulations (CCR) §66261.20 et seq.

TABLE 2-6
SUMMARY OF OPERATION WASTE STREAMS AND MANAGEMENT METHODS

Waste Stream and Classification[a]	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				On site	Off site
Used Hydraulic Fluid, Oils and Grease – Non-RCRA[b] Hazardous	Tracker drives and electrical equipment	50,000 gallon initial fill 1,000 gallons/ year refill	Intermittent	Accumulated for <90 days	Recycle
Lubricating oil – Non-RCRA Hazardous	Tracker drives and equipment	300 gallon tank/year	Intermittent	Accumulated for <90 days	Recycle

Waste Stream and Classification[a]	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				On site	Off site
Oily rags, oil absorbent, and oil filters – Non-RCRA Hazardous	Various	One 55-gallon drum per month	Intermittent	Accumulated for <90 days	Sent off site for recovery or disposed at Class I landfill
Sodium hypochlorite 12.5 percent solution (bleach) – Non-RCRA Hazardous	Disinfectant for potable water	4 gallon refill supply	Intermittent	Accumulated for <90 days 1,000 gallon storage tank	Sent off site for recovery or disposed at Class I landfill
Spent batteries – Universal Waste	Rechargeable and household	<10/month	Continuous	Accumulate for <1 year	Recycle
Spent batteries – Hazardous	Lead acid	20 every 2 years	Intermittent	Accumulated for <90 days	Recycle
Spent fluorescent bulbs – Universal Waste	Facility lighting	<50 per year	Intermittent	Accumulate for <1 year	Recycle
Sanitary wastewater – Nonhazardous	Toilets, washrooms	250 gallons/day	Continuous	Septic leach field	None

NOTES:

a Classification under 22 CCR §66261.20 et seq.

b Resource Conservation and Recovery Act

2.10.1.3 Hazardous Materials Management

During construction, all hazardous materials would be stored on-site in storage tanks, vessels, or other appropriate containers specifically designed for the characteristics of the materials to be stored. The storage facilities would include secondary containment in case of tank or vessel failure. Construction- and decommissioning-related hazardous materials used for development of the Project would include gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. Material Safety Data Sheets for all applicable materials present on-site would be readily available to on-site personnel.

Fueling of some construction vehicles would occur in the construction area. Other mobile equipment would return to the laydown area for refueling. Special procedures would be identified to minimize the potential for fuel spills, and spill control kits would be carried on all refueling vehicles for activities such as refueling, vehicle or equipment maintenance procedures, waste removal, and tank clean-out. Fuel for construction equipment could be provided by a fuel truck or could be stored on-site in aboveground double-walled storage tanks with built-in containment.

A Spill Prevention and Management Plan would include procedures, methods, and equipment supplied during construction to prevent discharges from reaching waters of

the state. The plan would be certified by a Registered Professional Engineer and a complete copy of it would be maintained on-site.

During BSPP operation, a variety of chemicals and hazardous materials would be stored and used at the facility. Chemicals would be stored inside the O&M building or water treatment area as appropriate to prevent exposure to the elements and to reduce the potential for accidental releases, and in appropriate chemical storage containers. Bulk chemicals would be stored in storage tanks; other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks and spills. Containment berm and drain piping design would accommodate a full-tank capacity spill without overflowing the containment berms. For multiple tanks located within the same bermed area, the capacity of the largest single tank would determine the volume of the bermed area and drain piping. The transport, storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations, and standards.

The quantities of hazardous materials stored on-site would be evaluated to identify the required usage and to maintain sufficient inventories to meet use rates without stockpiling excess chemicals. Chemicals that could be present during construction, operation, and maintenance of the BSPP are included in Table 2-7.

TABLE 2-7
SUMMARY OF SPECIAL HANDLING PRECAUTIONS FOR LARGE QUANTITY HAZARDOUS MATERIALS

Hazardous Material	Use	Relative Toxicity[a] and Hazard Class[b]	Permissible Exposure Limit	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Carbon Dioxide		Low toxicity; Hazard class – Nonflammable gas	TLV: 5,000 ppm (9,000 mg/m^3) TWA	Carbon steel tank, 15 tons maximum on-site inventory	Carbon steel tank with crash posts.
Diesel Fuel	Equipment refueling	Low toxicity; Hazard class – Combustible liquid	PEL: none established TLV: 100 mg/m^3	Carbon steel tank (3,600 gallons)	Secondary containment, overfill protection, vapor recovery, spill kit.
Hydraulic fluid (if applicable)	Tracker drive units	Low to moderate toxicity; Hazard class – Class IIIB combustible liquid	TWA (oil mist): 5 mg/m^3 STEL: 10 mg/m^3	Hydraulic drive tank, approximately 20 gallons per tracker drive unit (if applicable) throughout solar field. Carbon steel tank, maintenance inventory in 55 gallon steel drums.	Found only in equipment with a small maintenance inventory. Maintenance inventory stored within secondary containment; alternative measures to secondary containment for equipment would be implemented at the project.
Lube Oil	Lubricate rotating equipment (*e.g.,* tracker drive units)	Low toxicity Hazard class – NA	None established	Carbon steel tank, maintenance inventory in 55 gallon steel drums.	Secondary containment for tank and for maintenance inventory.
Mineral Insulating Oil	Transformers/ switchyard	Low toxicity Hazard class – NA	None established	Carbon steel transformers; total on-site inventory of approximately 250,000 gallons (each 1 megavolt-ampere transformer contains approximately 500 gallons). Carbon steel tank, maintenance inventory in 55 gallon steel drums.	Used only in transformers, secondary containment for each transformer. Maintenance inventory stored within secondary containment; alternative measures to secondary containment for equipment would be implemented at the project.
Soil stabilizer Active ingredient: acrylic or vinyl acetate polymer or equivalent		Non-toxic; Hazard class – NA	None established	No on-site storage, supplied in 55 gallon drums or 400 gallon totes, used immediately	No excess inventory stored on-site.
Sulfur Hexafluoride	230 kV breaker insulating medium			Contained within switchyard equipment; maximum of 7,500 lbs	Inventory management.

Hazardous Material	Use	Relative Toxicity[a] and Hazard Class[b]	Permissible Exposure Limit	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Acetylene	Welding gas	Moderate toxicity; Hazard class – Toxic	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management, isolated from incompatible chemicals.
Argon	Welding gas	Low toxicity; Hazard class – Nonflammable gas	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management.
Oxygen	Welding gas	Low toxicity; Hazard class – Oxidizer	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management, isolated from incompatible chemicals.
Sodium Hypochlorite 12.5 percent solution (bleach)	Disinfectant for potable water	Low toxicity; Hazard class – Oxidizer	PEL: none established	Plastic 1 gallon containers	Inventory management, isolated from incompatible chemicals.

NOTES:

[a] Low toxicity is used to describe materials with a National Fire Protection Association (NFPA) Health rating of 0 or 1. Moderate toxicity is used describe materials with an NFPA rating of 2. High toxicity is used to describe materials with an NFPA rating of 3. Extreme toxicity is used to describe materials with an NFPA rating of 4.

[b] NA denotes materials that do not meet the criteria for any hazard class defined in the 1997 Uniform Fire Code.

If a portable, trailer-mounted water treatment system would meet the BSPP flow and water quality demands described above, then no additional chemicals would be required for maintenance and regeneration of the system other than as indicated for disinfection of the system and related piping facilities. However, if a site-specific water treatment system is used, then the regeneration process could require additional chemicals to maintain its performance. Such chemicals could include sodium hydroxide solution, sodium hypochlorite solution, and/or sulfuric acid solution.

NextEra Blythe Solar would develop and implement a variety of plans and programs to ensure safe handling, storage, and use of hazardous materials (e.g., Hazardous Material Business Plan). Solar plant personnel would be supplied with appropriate personal protective equipment (PPE) and would be properly trained in the use of PPE as well as the handling, use, and cleanup of hazardous materials used at the facility and the procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials would be stored on-site.

In addition to the chemicals listed above, small quantities (less than 55 gallons, 500 pounds, or 200 cubic feet [for gases]) of janitorial supplies, office supplies, laboratory supplies, paint, degreasers, herbicides, pesticides, air conditioning fluids (chlorofluorocarbons or CFCs), gasoline, hydraulic fluid, propane, and welding rods typical of those purchased from retail outlets also could be stored and used at the facility. These materials would be stored in the maintenance warehouse or office building. Flammable materials (e.g., paints or solvents) would be stored in flammable material storage cabinet(s) with built-in containment sumps. The remainder of the materials would be stored on shelves, as appropriate.

2.10.1.4 Weed Management

A weed management plan has been developed for the BSPP and is currently under review with the BLM. A portion of the Approved Project was previously disturbed by PVSI. The need for the plan is to reduce and control invasive plants such as Saharan mustard (*Brassica tournefortii*), with some patches of non-native grasses, including all brome species (*Bromus* spp.), and Mediterranean grass (*Schismus* spp.) within the disturbed areas of the BSPP ROW.

There are several regulatory drivers that require the control of invasive and noxious weeds including both project-specific and federal requirements. Weed management methods are consistent with existing and proposed future site conditions, biology of the identified weed species, and environmental context of the BSPP. Weed management methods for the BSPP include the following:

- Preventive Measures
- Eradication and Control Methods

Table 2-8 shows the types of pesticides currently being used which would continue to be used in the future.

TABLE 2-8
PESTICIDE APPLICATION (INCLUDING MIXTURES AND SURFACTANTS)

	Trade Names	Common Names	EPA Registration No.	Manufacturer	Formulations (Liquid or Granular)	Method of Application
1	RoundPRO Herbicide	Same	524-475	Monsanto	Liquid	Backpack sprayers and truck mounted spray-rig
2	Triclopyr	Pathfinder™ or Garlon 4	62719-40	Dow AgroSciences	Liquid	Backpack sprayers, small tank sprayers (2- to 3-gallon), or small hand sprayers, wipe/paint
3	Glyphosate	Rodeo™ or Aquamaster™	62719-324	Dow AgroSciences	Liquid	Backpack sprayers, small tank sprayers (2- to 3-gallon), or small hand sprayers

MAXIMUM RATE OF APPLICATION	
USE UNIT ON LABEL	**POUNDS ACID EQUIVALENT/ACRE**
1. RoundPRO – 1.25 gallons/acres	5.0 lbs. a.e./acre
2. Triclophyr – 0.5 gallons/acres	2.0 lbs. a.e./acre
3. Glyphosate – 1.25 gallons/acres	5.0 lbs. a.e./acre

2.10.1.5 Hazardous Waste

Similar to the Approved Project, small quantities of hazardous wastes would be generated during Modified Project construction, operation, maintenance, and decommissioning. Hazardous wastes generated during the construction phase would include substances such as paint and primer, thinners, and solvents. Hazardous solid and liquid waste streams that would be generated during operation of the Project include substances such as used hydraulic fluids, used oils, greases, filters, etc., as well as spent cleaning solutions and spent batteries. Hazardous wastes generated during decommissioning would include substances such as carbon dioxide, diesel fuel, hydraulic fuel, and lube oil. To the extent possible, all hazardous wastes would be recycled.

NextEra Blythe Solar or its contractor would obtain a hazardous waste generator identification number from the California Environmental Protection Agency, Department of Toxic Substances Control prior to generating any hazardous waste. All spills would be reported to BLM and the county. Spills greater than 25 gallons would be reported to the Regional Water Quality Control Board (RWQCB). A sampling and cleanup report would be prepared and sent to the RWQCB to document each spill and clean up. Each

spill, regardless of amount, would be cleaned up within 48 hours and a spill report completed. Copies of all spill and cleanup reports would be kept on-site.

2.11 FACILITY CLOSURE

The standards applied to closure of the facility for the Modified Project would not be different from those applicable to the Approved Project.

The principal materials incorporated into the PV arrays include glass, steel, and various semiconductor metals. The module production process is designed to minimize waste generation and maximize the recyclability and reusability of component materials. Some manufacturers employ the compound CdTe as the semiconductor material. Cadmium telluride is a stable compound consisting of cadmium (Cd) and tellurium (Te). Cd, produced primarily as a byproduct of zinc refining, is a human carcinogen as an independent element; however, when combined with Te, a byproduct of copper refining, it forms the stable, non-hazardous compound CdTe. In module manufacturing the CdTe is safely sequestered for the over 30-year lifetime of the module, after which it is recycled for use in new solar modules or other new products. If the BSPP selects panels that incorporate CdTe, it would participate in the manufacturer's recycling program. An analysis of CdTe is included in Section 4.5 of this Petition.

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Section 3 ENGINEERING ANALYSIS

The following sections provide a description of the modifications proposed to the BSPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision. As discussed in Section 2 of this Petition, NextEra Blythe Solar has not yet selected the exact combination of fixed tilt and single access tracking PV modules for the site. Such selection will be made as part of the final design of the BSPP. However, where there are differences between the two systems, NextEra Blythe Solar has included a comparison of each for the Commission to consider a "worst-case" for each technical area.

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3.1 FACILITY DESIGN, EFFICIENCY, AND RELIABILITY

This section outlines the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project.

3.1.1 Overview of Approved Project

The Approved Project was originally licensed as a nominally rated 1000 MW solar thermal facility to be developed in four independent units, each with a capability of generating up to 250 MW with traditional steam turbine technology. The Approved Project would interconnect with a double circuit 230 kV transmission gen-tie line to the CRS which is already under construction.

The Approved Project would have utilized solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A HTF is brought to high temperature (750°F) as it circulates through the receiver tubes. The HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced. Individual components of the Approved Project included:

- Solar Field and Power Block #1 (northeast);
- Solar Field and Power Block #2 (northwest);
- Solar Field and Power Block #3 (southwest);
- Solar Field and Power Block #4 (southeast);
- Access road from and including upgraded portion of Black Rock Road to on-site office;
- Warehouse/maintenance building, assembly hall and laydown area;
- Telecommunications lines;
- Natural gas pipeline;
- Concrete batch plant;
- Fuel depot;
- On-site transmission facilities, including central internal switchyard;
- 230 kV double circuit transmission line interconnecting to the CRS (gen-tie line);
- Groundwater wells used for water supply; and
- Distribution/construction power line.

3.1.2 Relevant Modifications to Project Description

The primary modifications relevant to Facility Design, Efficiency, and Reliability are the following:

- The previously planned four power blocks (which each included a steam turbine, auxiliary boiler, air-cooled condenser, and equipment) and structures have been eliminated.
- The Land Treatment Units for HTF have been eliminated.
- The HelioTrough energy collection systems have been eliminated and replaced with PV panels configured for either horizontal tracking or fixed tilt operations.
- The substation has been replaced with a switchyard which is located near the center of the disturbance area.
- The large assembly hall has been eliminated.
- The concrete batch plant has been eliminated.
- The natural gas line has been eliminated.
- The water treatment system has been reduced in size to accommodate a reduction in water usage. Consequently, the associated waste quantities have been reduced and the number of evaporation ponds has been reduced from eight ponds to two.
- The large drainage structures surrounding the site have been eliminated, although smaller drainage features may be required.
- The amount of mass grading has been greatly reduced.
- The project footprint has been modified to allow transmission and access road corridors to accommodate the NextEra McCoy and future projects proposed to the north of the BSPP.
- Water use during construction has been reduced from approximately 4,100 AF to 700 to 1,200 AF.
- Water use during operations has been reduced from approximately 600 AFY to between 30 to 40 AFY.

3.1.3 Power Plant Efficiency

The Modified Project will represent an efficient use of land to generate clean, renewable solar power. To ensure flexibility in the specific technology/panel vender selected during final design, the project description presented in this PTA is based on the most efficient use of land for a thin film tracker scenario.

3.1.4 Power Plant Reliability

For practical purposes, a reliable power plant is one that is available when called upon to operate. The evidence shows that delivering acceptable reliability entails: (1) adequate levels of equipment availability; (2) plant maintainability with on-going maintenance; (3) fuel and water availability; and (4) resistance to natural hazards.

The Modified Project would consist of large numbers of small, easily replaceable components, primarily PV panels. Availability and reliability is expected to match the performance of conventional power plants. Manufacturers of PV modules typically offer 12 year warranties against failure, and 25 year warranties on sustained performance. The Modified Project would meet the same reliability considerations as the Approved Project.

3.1.5 Compliance with LORS

The Commission Final Decision concluded that, with implementation of the Conditions of Certification, the Approved Project would comply with all applicable Laws, Ordinances, Regulations, and Standards (LORS). No LORS have been identified that are uniquely applicable to PV. In fact, some of the LORS that would have been applicable to the Approved Project, such as those associated with the design of the facility components using natural gas or HTF, would no longer be applicable to the Modified Project. As with the Approved Project, the Modified Project would comply with all applicable LORS.

3.1.6 Conditions of Certification

Proposed Revisions to GEN-2

Rationale:

Condition of Certification **GEN-2** contains a table of major structures associated with the Approved Project. Many of these structures do not apply to PV technology. The table should be replaced as follows:

Equipment/System	Quantity (Plant)
PV Modules	6,000,000
PV Racking Systems[(a)]	71,500
Step-up Transformer Unit Foundations and Connections	4
Power Conversion Stations, Foundations and Connections	250
Met Station Foundations and Connections	4
Circuit-Breaker Foundations and Connections	29
Operation and Maintenance Facility Building Structure, Foundation and Connections	1
Raw/Fire Water Tank Structure, Foundation and Connections	1
Demineralized Water Tank Structure, Foundation and Connections	1
Potable Water Tank Structure Foundation and Connections	1

Equipment/System	Quantity (Plant)
Drainage Systems (including sanitary drain and waste	1 Lot
HVAC Systems	1 Lot
Temperature Control and Ventilation Systems (including water and septic connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchboards, Buses and Towers for Operations	1 Lot
Electrical Cables / Duct Banks	4 Lots

NOTE:

[(a)] PV equipment quantities are based on the existing plant layouts

Proposed Revisions to GEN-5

Rationale:

Condition of Certification **GEN-5** calls for a design engineer that is "fully competent and proficient in the design of power plant structures and equipment supports." A PV project lacks conventional power plant structures and equipment supports, making this part of the condition unnecessary.

The wording should be changed to, "…a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of PV plants and equipment support."

Proposed Revisions to MECH-1

Rationale:

Condition of Certification **MECH-1** lists several LORS that may no longer be applicable to the construction of a project that uses PV instead of solar thermal technology. The list of applicable standards should be modified as follows:

- ~~American National Standards Institute (ANSI) B31.1 (Power Piping Code);~~
- ~~ANSI B31.2 (Fuel Gas Piping Code);~~
- ~~ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);~~
- ~~ANSI B31.8 (Gas Transmission and Distribution Piping Code);~~
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Riverside County codes.

Proposed Elimination of MECH-2

Rationale:

Similarly, Condition of Certification **MECH-2 l**ists requirements for pressure vessels which will not be a part of the PV project. This COC should be deleted.

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3.2 TRANSMISSION SYSTEM ENGINEERING

This section outlines the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Final Decision for the Approved Project.

3.2.1 Overview of Approved Project

The Approved Project was originally licensed as a nominally rated 1,000 MW solar thermal facility to be developed in four independent units, each with a capability of generating up to 250 MW with traditional steam turbine technology. The Approved Project would interconnect with a double circuit 230 kV transmission gen-tie line to the CRS which is already under construction.

The Commission approved a previous amendment on August 24, 2011 to the Approved Project to accommodate the relocation of the CRS. CAISO, SCE, and PVSI executed a LGIA in November 2010, which was approved by FERC in March 2011. SCE and CAISO have completed studying the effect of switching solar technologies and whether the change impacts the previous interconnection studies and have concluded that the 485 MW of PV is acceptable. The LGIA would need to be amended to address the technology switch. The LGIA amendment, once executed, would require FERC review and approval.

3.2.2 Relevant Modifications to Project Description

The Modified Project will eliminate the power blocks and the CSP generation technology will be replaced with PV. The switchyard will be modified to accommodate this change. A preliminary one-line diagram and a preliminary layout of the proposed switchyard are presented in Appendix D.

3.2.3 Compliance with LORS

The Modified Project will comply with all transmission system engineering related laws, ordinances, regulations and standards. This will be ensured by enforcement of the existing Conditions of Certification as modified below. Evidence that the Modified Project can safely interconnect with the CAISO system at the CRS will be demonstrated by the LGIA, when amended.

3.2.4 Conditions of Certification

Proposed Revisions to ELEC-1

Rationale:

Condition of Certification **ELEC-1** lists voltages that do not apply to a PV project.

It is recommended that A.1 be modified to read: “one-line diagrams for the 34.5 kV systems and typical one-line diagrams for all systems under 34.5 kV and over 240 V; and”

It is recommended that B.5 be modified to read: “coordination study calculations for fuses, circuit breakers, and protective relay settings for all AC systems under 34.5 kV and over 240 V;”.

A. Final plant design plans shall include:
   1. one-line diagrams for the ~~13.8-kV, 4.16-kV, and 480 V systems~~**34.5 kV systems and typical one-line diagrams for all systems under 34.5 kV and over 240 V** ; and
   2. system grounding drawings.

B. Final plant calculations must establish:
   1. short-circuit ratings of plant equipment;
   2. ampacity of feeder cables;
   3. voltage drop in feeder cables;
   4. system grounding requirements;
   5. coordination study calculations for fuses, circuit breakers, and protective relay settings for ~~the 13.8-kV, 4.16-kV, and 480 V systems;~~ **all AC systems under 34.5 kV and over 240 V;**
   6. system grounding requirements; and
   7. lighting energy calculations.

3.3 TRANSMISSION LINE SAFETY AND NUISANCE

There will be no changes to the Commission's assumptions, analysis, rationale, or Conditions of Certification as a result of the Modified Project to the technical area of Transmission Line Safety and Nuisance because the Approved transmission line is not changing.

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Section 4 PUBLIC HEALTH AND SAFETY

The following sections provide a description of the modifications proposed to the BSPP as they may affect the assumptions, rationale, and Conditions of Certification in the Commission Final Decision. As discussed in Section 2 of this Petition, NextEra Blythe Solar has not yet selected the exact combination of fixed tilt and single access tracking PV modules for the site. Such selection will be made as part of the final design of the BSPP. However, where there are differences between the two systems, NextEra Blythe Solar has included a comparison of each for the Commission to consider a "worse-case" for each technical area. Table 4.0-1 presents a summary of the anticipated differences in impacts associated with the modular systems. As shown in Table 4.0-1, the relative difference in impacts of either fixed-tilt or tracking PV systems or a combination of both systems is insignificant. Furthermore, either type of PV system is expected to have lower impacts than the Approved Project.

Ultimately the selection of either fixed-tilt or tracking PV systems or a combination of both systems will not affect the amount of land that is assumed to be considered impacted and upon which mitigation is based, the construction methodologies or types or quantities of equipment necessary to construct the project and therefore construction emissions will be the same, or the hazardous materials or waste generated. There will be a nearly imperceptible difference in the noise generated by the small motors used for the tracking system. A tracking system will present variable orientation of the panels to the sun; however, any type of PV panel is designed to minimize reflection and the visual impacts associated with the Modified Project are based on a "worst case" tracking orientation.

TABLE 4.0-1
COMPARISON OF IMPACTS OF FIXED-TILT, TRACKING, AND COMBINATION OF BOTH PV SYSTEMS

Issue	Tracker Only	Fixed-Tilt Only	Combination of Tracker and Fixed-Tilt	Impacts Lower than Approved Project?
Air Quality, GHG and Public Health	Same	Same	Same	Yes
Worker Safety/Fire Protection	Same	Same	Same	Yes
Hazardous Materials Management	Same	Same	Same	Yes
Waste Management	Same[(a)]	Same[(a)]	Same[(a)]	Yes
Biological Resources	Same	Same	Same	Yes
Water Resources	Same	Same	Same	Yes
Cultural Resources	Same	Same	Same	Yes
Geological and Paleontological Resources	Same	Same	Same	Yes
Soil Resources	Same	Same	Same	Yes
Land Use	Same	Same	Same	Yes
Traffic and Transportation	Same	Same	Same	Yes

Issue	Tracker Only	Fixed-Tilt Only	Combination of Tracker and Fixed-Tilt	Impacts Lower than Approved Project?
Socioeconomics	Same	Same	Same	Yes
Noise and Vibration	Tracking motors are a minor source of noise[(b)]	Slightly less as there would be no motors	Slightly greater than Fixed-Tilt only and slightly lower than Tracker only	Yes[(b)]
Visual Resources	Panels would move and would present different sun angles	Slightly less as the panels would not move	Slightly greater than Fixed-Tilt only and slightly lower than Tracker only	Yes[(c)]

NOTES:

[(a)] If NextEra Blythe Solar selects panels that incorporate Cadmium Telluride (CdTe), it would participate in the manufacturer's recycling program. However, presence of this material is considered to be less of a waste management issue than dealing with the heat transfer fluid used for the Approved Project.

[(b)] Tracking motors are significantly less noisy than the steam turbine and air cooled condenser that were part of the Approved Project.

[(c)] Any type of PV panel will have substantially less potential for visual impacts than parabolic mirrors as PV panels are designed to be non-reflective.

4.1 GREENHOUSE GAS EMISSIONS

This section provides estimates of GHG emissions associated with the construction and operation of the Modified Project. As described below, impacts of the Modified Project with respect to GHG emissions are expected to be less than those of the Approved Project and will remain less than significant.

4.1.1 Summary of Project Changes Related to GHG Emissions

The changes proposed for the Modified Project that would reduce greenhouse gas (GHG) emissions include the following:

- The elimination of the solar thermal technology eliminates the GHG emissions associated with the combustion of natural gas by auxiliary boilers for freeze protection of the HTF.
- A reduction in the construction period from 69 months to up to 48 months.
- A reduction in the amount of grading needed in the solar field, as well as a smaller Project footprint.
- A reduction in the construction workforce from an average of approximately 604 daily construction workers, with a peak daily workforce of 1,004, to an average of 250 to 430 daily construction workers, with a peak daily workforce of 619.
- A reduction in the hiring of about 221 permanent, full-time employees to hiring 15 to 20 permanent, full-time employees for project operations. Temporary personnel would be employed, as needed, during seasonal periods when panel washing is required.

4.1.2 Reduction in GHG Impacts

GHG emissions from construction equipment were calculated by multiplying total operating hours by emission factors. Emission factors for carbon dioxide (CO_2) and methane (CH_4) were calculated with the OFFROAD2007[2] model for calendar year 2014. Nitrous oxide (N_2O) emission factors were calculated as 2.6 grams per gallon from Table 13.7 of 2013 Climate Action Registry Default Emission Factors. Fuel consumption for calculating N_2O emissions was calculated by dividing total daily state-wide fuel

[2] CARB released the OFFROAD 2011 off-road equipment emissions model in September 2011. The OFFROAD 2011 model was developed primarily to support CARB regulatory activities to reduce emissions from in-use off-road equipment. The OFFROAD 2011 model does not include emissions and emission factors for all of the types of construction equipment that are anticipated to be used for construction activities for the Modified Project. It also does not include emissions of greenhouse gases. Because of the limitations in the OFFROAD 2011 model, it was not used for these analyses. Emission factors calculated using the OFFROAD 2011 model are generally lower than emission factors calculated using the OFFROAD 2007 model. Therefore, use of the emission factors calculated using the OFFROAD 2007 model provides a conservative estimate of emissions.

consumption, calculated with the OFFROAD2007 model for 2014, by total daily state-wide operating hours, also calculated with the OFFROAD2007 model for 2014. All the calculations were made by the equipment types and horsepower ranges used in the OFFROAD2007 model. Additionally, it was assumed that all applicable equipment would have engines that would meet Tier 3 emission standards at a minimum, so model-year specific outputs from the OFFROAD2007 model were used for the earliest model year that would be required to meet the Tier 3 standards.

GHG emissions from motor vehicles during construction were calculated by multiplying total vehicle-mile-traveled (VMT) by emission factors. CO_2 emission factors were calculated by dividing total daily emissions in Riverside County by vehicle class in 2014 calculated with the EMFAC2011 model by total daily VMT in Riverside County by vehicle class in 2014 calculated with the EMFAC2011 model. CH_4 emissions from gasoline fueled vehicles were calculated using a similar method with the EMFAC2011-LDV model, which can report CH4 emissions. CH_4 emission factors for diesel-fueled vehicles were calculated as 0.0408 x total organic gases emission factors, N_2O emission factors for gasoline-fueled vehicles were calculated as 0.0416 x nitrogen oxide (NO_x) emission factors, and N_2O emission factors for diesel-fueled vehicles were calculated from 0.3316 grams/gallon. The off-site motor vehicle trips for the delivery of the PV panels to the site were calculated as the total miles from the presumed point of origin in Long Beach, California. The procedures to calculate CH_4 emissions for diesel vehicles and N_2O emission factors for both gasoline and diesel vehicles are based on recommendations from California Air Resources Board (CARB).

A similar approach was used for GHG emissions from motor vehicles during operation, except that emissions were calculated for 2018, and on-site motor vehicles were assumed to be 2018 model year. The emissions factors were multiplied by annual VMT to calculate annual GHG emission.

4.1.2.1 Summary of GHG Construction Emissions

Table 4.1-1 presents a summary of the estimates of GHG emissions for the 48 month construction phase of the Modified Project (total of on-site and off-site emissions) compared to the Approved Project. The emissions spreadsheets with the detailed calculations of the GHG emissions are provided in Appendix E.

TABLE 4.1-1
COMPARISON OF GHG CONSTRUCTION EMISSIONS ESTIMATES

Source	Modified Project	Approved Project[(a)]
	Metric Tons CO_2e	
On-Site Construction Equipment	5,200	70,700
On-Site Motor Vehicles	700	1,800
Off-Site Motor Vehicles[(b)]	48,200*	34,400
Total CO_2e	54,100	103,900

NOTE:

[(a)] Source: California Energy Commission, 2010

[(b)] Modified Project off-site motor vehicle GHG emissions are greater than Approved Project because the Approved Project only included delivery vehicle mileage in the vicinity of the project. Based on the current methodology requested by CEC staff, the delivery vehicle mileage for the Modified Project is based on a trip length from the point of origin within California, e.g., PV panels were assumed to be delivered to the site from the Port of Long Beach. Even with this methodology adjustment, total GHG emissions for the Modified Project are about half of the GHG emissions from the Approved Project.

4.1.2.2 Summary of GHG Operation Emissions

Table 4.1-2 presents the estimates of GHG emissions for the operation phase of the Modified Project (total of on-site and offsite emissions), and compares these emissions to those of the Approved Project. The GHG emissions estimate of 125 metric tons carbon dioxide equivalent (CO_2e) per year for operation of the Modified Project is substantially less than the GHG operation estimate of 14,789 metric tons CO_2e per year contained in the Final Decision for the Approved Project.

TABLE 4.1-2
COMPARISON OF GHG OPERATION EMISSIONS ESTIMATES

	Modified Project	Approved Project[(a)]
Source	Metric Tons CO_2e per Year	
On-Site Equipment[(b)]	6	13,167
On-Site Maintenance Vehicles	17	226
Delivery Vehicles	10	164
Employee Vehicles	92	1,208
Equipment Leakage (SF_6)	--[(c)]	24
Total CO_2e	125	14,789

NOTES:

[(a)] Source: California Energy Commission, 2010

[(b)] On-site equipment during operations includes a portable light plant generator for the Modified Project, and four each Auxiliary boilers, emergency generators and fire water pumps for the Approved Project

[(c)] An overly conservative emissions methodology for leakage of SF_6 from circuit breakers and electrical equipment was assumed for the Approved Project. It is assumed that hermetically sealed circuit breakers would be used for the Modified Project.

4.1.3 Compliance with LORS

There are no changes in LORS that would be applicable to the Modified Project. Therefore, the analysis contained in the Final Decision should remain unchanged for the Modified Project.

4.1.4 Conditions of Certification

There were no Conditions of Certification imposed on the Approved Project in the area of GHG emissions. Consequently, no changes or additions are necessary for the Modified Project.

LITERATURE CITED

California Energy Commission, 2010. Blythe Solar Power Project Commission Decision. CEC-800-2010-009-CMF. pp. 113 - 115.

4.2 AIR QUALITY

This section provides estimates of criteria pollutant emissions associated with the construction and operation of the Modified Project.

Emissions modeling was not conducted for the construction phase of the Modified Project since many of the construction activities associated with grading of the site were similar to the Approved Project, but in all cases the on-site emissions of criteria pollutants are less than in the Approved Project. Therefore, the modeled impacts associated with construction of the Modified Project are assumed to be at most equal, and more likely substantially less, than in the Approved Project, as discussed in Section 4.2.2.

Emissions modeling was not conducted for operation and maintenance of the Modified Project because the discontinued use of the solar thermal technology eliminates the emissions associated with the use of HTF, the combustion of natural gas, and the intensive mirror washing program of the Approved Project. The air quality emissions for O&M of the Modified Project are estimated to be a fraction of those of the Approved Project, as discussed in Section 4.2.3.

4.2.1 Summary of Project Changes Related to Air Quality

The changes proposed for the Modified Project that would reduce affects to air quality include the following:

- The elimination of the solar thermal technology dramatically reduces the operational and maintenance emissions associated with the Project due to the following:
  - HTF will no longer be used, so the extensive piping throughout the solar field and the ullage systems will not be installed;
  - The auxiliary boilers which burn natural gas and are used for freeze protection of the HTF and cold startup of the steam generators will no longer be needed;
  - Emergency generators and fire water pump engines which burn diesel fuel are no longer planned in the power block area; and
  - PV panels require much less frequent washing (e.g., at most quarterly) rather than the intensive weekly mirror washing program.
- Emissions during the construction period are also substantially reduced due to the following factors:
  - The Project footprint is reduced from 6,831 acres to 4,070 acres;
  - The length of the time needed for construction is decreased from 69 months to up to 48 months;

- Since PV panels do not require a nearly flat surface, substantially less grading of the Project footprint is planned;
- The cut and fill amount is reduced from approximately 8.3 million cubic yards to approximately 0.9 million cubic yards;
- The Project will not utilize an on-site concrete batch plant or fuel depot (diesel fuel will be obtained from fueling trucks brought on-site and gasoline will be obtained from a nearby gasoline station in Blythe); and
- A natural gas pipeline will not be constructed.

4.2.2 Summary of Construction Emissions

The methodology for calculating criteria pollutants impacts during construction is described below in Section 4.2.2.1. The estimated emissions from construction of the Modified Project are presented in Section 4.2.2.2 and the detailed emissions calculations are provided in Appendix E.

4.2.2.1 Construction Emissions Calculation Methodology

Emissions from construction equipment were calculated by multiplying operating hours by emission factors, in pounds per hour calculated with OFFROAD2007 for calendar year 2014 and assuming all equipment engines would meet Tier 3 emission standards. Emissions from motor vehicles were calculated by multiplying VMT by emission factors calculated with EMFAC2011[3] for 2014 in Riverside County.

Fugitive particulate dust emissions for vehicles traveling on unpaved roads and paved roads were calculated by multiplying VMT on unpaved and paved roads by emission factors calculated using equations in U.S. Environmental Protection Agency's (EPA's) Compilation of Air Pollutant Emission Factors (AP-42). It was estimated that emissions on unpaved roads would be reduced by 81 percent by limiting speeds to 15 miles per hour and watering twice per day. Fugitive dust emissions from earthwork activities were calculated by multiplying activity levels by emission factors calculated using equations in AP-42. The activities included soil dropping and bulldozing, grading, and scraping. It was assumed that watering would be used to maintain soil at a moisture level of at least 15 percent.

[3] CARB released the OFFROAD 2011 off-road equipment emissions model in September 2011. The OFFROAD 2011 model was developed primarily to support CARB regulatory activities to reduce emissions from in-use off-road equipment. The OFFROAD 2011 model does not include emissions and emission factors for all of the types of construction equipment that are anticipated to be used for construction activities for the Modified Project. It also does not include emissions of CO, SO_2 or greenhouse gases. Because of the limitations in the OFFROAD 2011 model, it was not used for these analyses. Emission factors calculated using the OFFROAD 2011 model are generally lower than emission factors calculated using the OFFROAD 2007 model. Therefore, use of the emission factors calculated using the OFFROAD 2007 model provides a conservative estimate of emissions.

Fugitive reactive organic gas (ROG) emissions from asphaltic paving were calculated by multiplying the area paved by an emission factor from CalEEMod.

4.2.2.2 Construction Emissions

Table 4.2-1 presents the estimated maximum daily emissions and Table 4.2-2 presents the maximum annual emissions generated during construction of the Modified Project. A comparison between the maximum daily and annual on-site emissions generated during construction of the Modified Project and the Approved Project are shown in Table 4.2-3.

TABLE 4.2-1
MAXIMUM DAILY MODIFIED PROJECT PLANT SITE CONSTRUCTION EMISSIONS SUMMARY

Source	Emissions (lb/day)					
	CO	ROG	NO_x	SO_x	PM_{10}	$PM_{2.5}$
On-site Emissions						
Equipment Exhaust	53.7	14.3	113.8	0.2	4.4	4.0
Motor Vehicle Exhaust	1.2	0.3	8.7	0.0	0.3	0.3
Paving Fugitive ROG	--	0.3	--	--	--	--
Motor Vehicle Fugitive Dust	--	--	--	--	598.5	59.9
Earthwork Fugitive Dust	--	--	--	--	75.9	23.1
Total On-site Emissions	54.9	14.9	122.5	0.2	679.1	87.4
Offsite Emissions						
Total Offsite Emissions [(a)]	304.2	40.4	333.3	0.7	25.2	12.5

NOTE:

[(a)] Offsite emissions reflect employee and delivery truck on-road emissions within the Mojave Desert Air Basin related to grading and construction of the power plant facilities and do not include construction of the linear facilities (i.e., the access road and transmission line).

TABLE 4.2-2
MAXIMUM ANNUAL MODIFIED PROJECT PLANT SITE CONSTRUCTION EMISSIONS SUMMARY

Source	Emissions (tons/year)					
	CO	ROG	NO_x	SO_x	PM_{10}	$PM_{2.5}$
On-site Emissions						
Equipment Exhaust	5.6	1.5	12.4	0.0	0.4	0.5
Motor Vehicle Exhaust	0.1	0.0	1.0	0.0	0.0	0.0
Paving Fugitive ROG	--	0.0	--	--	--	--
Motor Vehicle Fugitive dust	--	--	--	--	60.5	5.9
Earthwork Fugitive dust	--	--	--	--	8.6	2.8
Total On-site Emissions	5.8	1.6	13.4	0.0	69.5	9.2
Offsite Emissions						
Total Offsite Emissions [(a)]	31.7	4.3	39.7	0.1	2.8	1.4

NOTE:

[(a)] Offsite emissions reflect employee and delivery truck on-road emissions within the Mojave Desert Air Basin related to grading and construction of the power plant facilities and do not include construction of the linear facilities (i.e., the access road and transmission line).

TABLE 4.2-3
COMPARISON OF ON-SITE CONSTRUCTION EMISSIONS FOR MODIFIED VS. APPROVED PROJECT

	Plant Site Construction Emissions					
	CO	**ROG**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Plant Site Construction Emissions (lb/day)						
Modified Project (Table 4.2-1)	54.9	14.9	122.5	0.2	679.1	87.4
Approved Project [(a)]	*488.8*	*95.3*	*878.2*	*1.9*	*920.9*	*186.2*
Maximum Annual Plant Site Construction Emissions (tons/year)						
Modified Project (Table 4.2-2)	5.8	1.6	13.4	0.0	69.5	9.2
Approved Project [(a)]	*57.7*	*11.5*	*101.9*	*0.2*	*103.2*	*21.2*

NOTE:

[(a)] Emissions for the Approved Project are from Air Quality Table 6 and Table 7 of the CEC's Revised Staff Assessment for the Blythe Solar Power Project, June 2010.

As shown in Table 4.2-3, in comparison to the Approved Project, the Modified Project would generate substantially lower on-site emissions on a daily and annual basis due to the reduced size of the site and the reduced earthwork activities. The maximum daily PM_{10} fugitive dust emissions show the least reduction between the Approved and Modified Projects because the emissions are reflective of the grading period, which will consist of the same types of activities and equipment in either case. Fugitive dust from both construction equipment and motor vehicle use on unpaved areas reflect over 93 percent of the total PM_{10} emissions for both the Modified and the Approved Project.

The construction modeling was not redone for the Modified Project. Since the same grading techniques and types construction equipment would be used in both cases, the modeling scenarios would be basically the same, but with much lower emissions. For the Approved Project, the modeling analysis demonstrated compliance with applicable ambient air quality standards for all pollutants except PM_{10}, which was exceeded because the background value chosen was already well over the California standards. Since the Applicant is not proposing changes to any PM_{10}-related mitigation measures, there does not appear to be a good reason to remodel PM_{10} impacts.

The NO_2 and $PM_{2.5}$ impacts for the Approved Project were close (99 percent) to the applicable short-term (1-hour and 24-hour, respectively) standards. Since the maximum daily emissions for the Modified Project of NO_x and $PM_{2.5}$ are 14 percent and 47 percent of these pollutant emissions for the Approved Project, it is safe to assume that the modeling analyses using the same conservative assumptions would show compliance with these standards by a wider margin. Similarly, the Modified Project's contribution to the PM_{10} impacts can be expected to decrease by roughly the same 74 percent on a daily basis and 67 percent on an annual basis as the emissions do. Therefore, impacts would remain less than significant with the implementation of the mitigation measures as required by Commission Conditions of Certification AQ-SC1 through AQ-SC5.

4.2.3 Summary of Operations and Maintenance Emissions

The methodology for calculating criteria pollutant emissions during operations is described below in Section 4.2.3.1. The estimated emissions from O&M of the Modified Project are presented in Section 4.2.2.3 and the detailed emissions calculations are provided in Appendix E.

4.2.3.1 O&M Emissions Calculation Methodology

As with vehicle emissions during the construction phase, emissions from motor vehicles during the operation phase were calculated by multiplying VMT by emission factors calculated with EMFAC2011 for 2014 in Riverside County. Fugitive dust emissions for vehicles traveling on unpaved roads and paved roads were calculated by multiplying VMT on unpaved and paved roads by emission factors calculated using equations in EPA's AP-42.

4.2.3.2 O&M Emissions

The maximum daily and annual O&M emissions for the Modified Project are shown in Tables 4.2-4 and 4.2-5, respectively. A comparison between the maximum daily and annual on-site emissions generated during O&M of the Modified Project and the Approved Project are shown in Table 4.2-6.

TABLE 4.2-4
MAXIMUM DAILY O&M EMISSIONS SUMMARY

Source	Emissions (lb/day)					
	CO	ROG	NO_x	SO_x	PM_{10}	$PM_{2.5}$
On-Site Emissions						
On-site Equipment [(a)]	--	--	--	--	--	--
Off-Road Equipment	0.7	0.1	1.03	0.0	0.0	0.0
On-site Motor Vehicle Exhaust	0.1	0.0	0.07	0.0	0.0	0.0
On-site Vehicle Fugitive Dust	--	--	--	--	48.6	4.9
Total On-site Emissions	0.8	0.1	1.1	0.0	48.6	4.9
Offsite Emissions						
Total Offsite Emissions [(b)]	7.0	0.9	2.2	0.0	0.6	0.2

NOTE:

[(a)] On-site equipment for the Modified Project consists of a 30 hp portable light plant generator with negligible emissions.
[(b)] Offsite emissions reflect employee and delivery truck on-road emissions within the Mojave Desert Air Basin

TABLE 4.2-5
MAXIMUM ANNUAL O&M EMISSIONS SUMMARY

Source	Emissions (tons/year)					
	CO	ROG	NO_x	SO_x	PM_{10}	$PM_{2.5}$
On-site Emissions						
On-site Equipment [(a)]	--	--	--	--	--	--
Off-Road Equipment	0.0	0.0	0.1	0.0	0.0	0.0
On-site Motor Vehicle Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
On-site Vehicle Fugitive Dust	--	--	--	--	6.7	0.7
Total On-site Emissions	0.1	0.0	0.1	0.0	6.7	0.7
Offsite Emissions						
Total Offsite Emissions [(b)]	0.9	0.1	0.1	0.0	0.1	0.0

NOTE:

[(a)] On-site equipment for the Modified Project consists of a 30 hp portable light plant generator with negligible emissions.
[(b)] Offsite emissions reflect employee and delivery truck on-road emissions within the Mojave Desert Air Basin

As shown in Table 4.2-6, the O&M emissions for the Modified Project are only a fraction of those from the Approved Project. A breakdown of the on-site equipment and maintenance vehicle emissions (primary associated with the mirror washing) is provided for the Approved Project, and a further breakdown can be found in the CEC's Revised Staff Assessment (CEC 2010). The lower on-site emissions of the Modified Project are primarily due to the elimination of the equipment in each of the power blocks at the facility and the fact that the intensive mirror washing to support solar thermal technology is no longer needed.

Similar to the construction phase, modeling during O&M was not redone for the Modified Project. As shown in Table 4.2-6, the daily and annual emissions from both the stationary equipment and the maintenance vehicles for the Modified Project are less than 9 percent (in most cases less than 1 percent) of the emissions for the Approved Project. The modeling analysis for the Approved Project from O&M emissions resulted in similar impacts to those discussed above for the construction phase, and like construction, with the substantially reduced emissions from the Modified Project, impacts would remain less than significant with the implementation of the mitigation measures as required by Commission Conditions of Certification **AQ-SC6** and **AQ-SC7**.

TABLE 4.2-6
COMPARISON OF ON-SITE O&M EMISSIONS FOR MODIFIED VERSUS APPROVED PROJECT

	Emissions					
	CO	ROG	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily O&M Emissions (lb/day)						
Total Modified Project (Table 4.2-4)	0.8	0.1	1.1	0.0	48.6	4.9
Total Approved Project On-site Equipment [(a b)]	*143.5*	*219.6*	*145.5*	*0.64*	*25.8*	*25.6*
Total Approved Project Maintenance Vehicles (Exhaust and Fugitive Dust)[(b)]	*1.34*	*0.23*	*2.25*	*0.02*	*809.8*	*81.1*
Total Approved Project [(b)]	*144.8*	*219.9*	*147.8*	*0.7*	*835.6*	*106.7*

	Emissions					
	CO	**ROG**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Maximum Annual O&M Emissions (tons/year)						
Total Modified Project (Table 4.2-5)	0.1	0.0	0.1	0.0	6.7	0.7
Total Approved Project On-site Equipment [a b]	*6.38*	*35.35*	*4.46*	*0.00*	*1.85*	*1.85*
Total Approved Project Maintenance Vehicles (Exhaust and Fugitive Dust [b]	*0.15*	*0.02*	*0.22*	*0.00*	*72.7*	*7.3*
Total Approved Project [b]	*6.5*	*35.4*	*4.7*	*0.0*	*74.5*	*9.1*

NOTES:

[a] On-site equipment for the Approved Project consists of four auxiliary boilers, four emergency generators, four fire water pumps, four auxiliary cooling towers, HTF ullage system vents and piping, and fuel depot emissions.

[b] Emissions for the Approved Project are from Air Quality Table 8 and Table 9 of the CEC's Revised Staff Assessment for the Blythe Solar Power Project, June 2010.

4.2.4 Compliance With LORS

The Modified Project will not be required to submit an application for a Determination Of Compliance with the Mojave Desert Air Quality Management District (MDAQMD) because it will not have any permanent emission sources that would require permits under MDAQMD rules (The 30 horsepower [hp] light plant generator is below the 50 hp threshold at which a permit is required).

4.2.5 Conditions of Certification

Conditions of Certification **AQ-SC8** and **AQ-1** through **AQ-64** should be deleted as they are no longer applicable to the Modified Project because the BSPP will no longer have equipment that requires MDAQMD or federal air permits.

Condition of Certification **AQ-SC6** should be revised as follows to reflect that the Modified Project will not incorporate mirrors.

AQ-SC6 The project owner, when obtaining dedicated on-road or off-road vehicles for ~~mirror~~ **panel** washing activities and other facility maintenance activities, shall only obtain vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the latest model year available when obtained.

LITERATURE CITED

California Energy Commission. 2010. REVISED Energy Commission Staff Assessment, publication number CEC-700-2010-004-REV1. Posted: June 4.

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4.3 PUBLIC HEALTH

This section provides a public health impact analysis associated with construction emissions for the Modified Project. As described below, public health-related impacts of the Modified Project are expected to be less than those of the Approved Project and will remain less than significant. The public health impact analysis for O&M of the Modified Project is not provided because with the elimination of the solar thermal technology, the emissions associated with the use of HTF, the consumption of natural gas, and the intensive mirror washing program are no longer present. Therefore, the potential public health impacts associated with emissions during operation and maintenance of the Modified Project are estimated to be a fraction of those of the Approved Project.

However, since the emissions associated with construction activities for the Modified Project are expected to be similar to those evaluated for the Approved Project, a revised health risk assessment (HRA) was performed for the Modified Project. The revised HRA provided below is based on the updated construction schedule and construction emissions for the currently proposed Modified Project.

4.3.1 Summary of Project Changes Related to Public Health

The changes proposed for the Modified Project that would reduce effects to public health include the following:

- A reduction in the construction period from 69 months to up to 48 months.
- A reduction in the construction workforce from an average of approximately 604 daily construction workers, with a peak daily workforce of 1,004, to an average of 250 to 430 daily construction workers, with a peak daily workforce of 619.
- A reduction in the area disturbed from 6,831 acres to 4,070 acres.
- A reduction in the cut and fill amount from approximately 8.3 million cubic yards to approximately 0.9 million cubic yards.

4.3.2 Reduction in Public Health Impacts

The screening risk calculation for construction impacts (i.e., diesel equipment particulate matter emissions and the inhalation pathway assumption) is presented in Table 4.3-1. Consistent with the previous project analysis, no sensitive receptors were noted within a 3-mile radius of the plant site. In addition to the HRA done for the Approved Project, a revised HRA was submitted in June 2012. That June 2012 HRA assumed a construction period of 6.25 years and total Diesel Particulate Matter (DPM) emissions of 21.5 tons. The construction of the currently proposed Modified Project will be over a period of up to 48 months (4 years) and total DPM emissions will be 1.81 tons, which is less than 9 percent of the DPM emissions estimated in the June 2012 HRA. The

combustion source impacts in the June 2012 HRA were scaled by this factor to determine the updated DPM concentration for the Modified Project. The cancer risk over the 4 year period from DPM emissions was calculated based on the Revised Technical Support Document for Exposure Assessment and Stochastic Analysis (OEHHA 2012). The resulting impacts to public health are much less than the applicable significance level of 10 in a million cancer risk and 1.0 hazard index. These impacts are well below those of the Approved Project which was found to have a maximum potential cancer risk of 1.1 in a million. Thus, during the construction phase of the Modified Project, no impacts to public health are expected to occur.

TABLE 4.3-1
CONSTRUCTION RISK SUMMARY

Parameter	MIR Receptor #1	MIR Receptor #2
Receptor Location	Fence line	Nearest Residential
MIR Receptor Coordinates (UTM meters-NAD83)	705922, 3727306	710535, 3721040
Cancer Risk (per million 4 years)	0.61	0.01
Chronic HI	0.001	0.000

NOTES:

The maximum on-site diesel exhaust period emissions (total tons over four years) were used for risk evaluation purposes. Maximum annual DPM combustion source impacts are 0.00303 ug/m^3 for the fenceline receptor, and 0.00006 ug/m^3 for the nearest residential receptor.

4.3.3 Compliance With LORS

There are no public health related LORS that would be applicable to the Modified Project solely as a result of its conversion to PV technology. Therefore, the Commission Final Decision that the BSPP would comply with all public health related LORS would still be applicable.

4.3.4 Conditions of Certification

The Commission Final Decision includes Condition of Certification **PUBLIC HEALTH-1** which applied solely to use the cooling tower. Since the Modified Project will not construct or operate any cooling towers, this Condition of Certification should be deleted.

LITERATURE CITED

California Office of Environmental Health Hazard Assessment (OEHHA), 2012. Revised Technical Support Document for Exposure Assessment and Stochastic Analysis. Available online at: http://www.oehha.ca.gov/air/hot_spots/tsd082712.html

4.4 WORKER SAFETY/FIRE PROTECTION

This section discusses the reduction in impacts to worker safety and fire protection for the Modified Project.

4.4.1 Project Changes Related to Worker Safety and Fire Protection

The Modified Project proposes to utilize either fixed tilt or single-axis tracking PV modules for the Modified Project's electrical generation. The elimination of all solar thermal technology (including the equipment within the four power blocks) would result in the elimination of combustion of natural gas and the transport and storage of HTF. These components, along with the potential for workers to be exposed to Valley Fever and unexploded ordnance, were the focus of potential impacts to worker safety and fire protection during licensing of the Approved Project. The Modified Project will consist of a large number of solar PV panels, wires, and connections, which could be an additional source of electrical hazards.

4.4.2 Changes in Environmental Impacts

The potential impacts to worker safety during construction would be the same for the Modified Project as for the Approved Project.

The largest potential change to the analysis contained in the Final Decision is whether the on-going contribution to Riverside County Fire Department remains necessary since the level of service needed to respond to a HTF fire in the solar field, or a fire or explosion within the power block, has been eliminated. NextEra Blythe Solar will work with the Riverside County Fire Department and/or the City of Blythe Fire Department to negotiate an appropriate mitigation fee, if needed, to offset the impacts to the applicable fire department(s) from the reduced risk posed by the Modified Project. In the event of an on-site fire involving the PV panels, on-site workers and emergency responders may be subject to electrical shock hazards, since PV panels can remain energized after circuits are cut. NextEra Blythe Solar will identify safety measures, engineering controls, and BMPs that will be put in place as part of the Emergency Action Plan required by **WORKER SAFETY-2** in order to address potential electrical shock hazards. Training in required practices to address electrical shock hazards will also be included as part of exercises required in **WORKER SAFETY-9**.

4.4.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

4.4.4 Conditions of Certification

No new or more severe impacts requiring additional mitigation would result from the Modified Project. Several changes to Conditions of Certification **WORKER SAFETY-1**, **WORKER SAFETY-2**, and **WORKER SAFETY-6** are proposed due to the elimination of the above-ground fuel depot, concrete batch plant, and the second site access road. In addition, proposed changes to Condition of Certification **WORKER SAFETY-2, WORKER SAFETY-7 and WORKER SAFETY-9** will need to be revised to reflect the reduction in impacts to the Riverside County Fire Department and/or City of Blythe Fire Department associated with the lower of level response necessary for the Modified Project.

Note, only excerpts from the Conditions of Certification which show the revisions are provided in this section, and a comprehensive set of both the revised and unchanged Conditions are provided under separate cover.

Proposed Revision to WORKER SAFETY-1

Rationale:

The Modified Project will not contain a concrete batch plant or an above-ground fuel depot. Accordingly, the Construction Fire Prevention Plan in **WORKER SAFETY-1** does not need to address a concrete batch plant or an above-ground fuel depot, as it did for the Approved Project.

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- A Construction Fire Prevention Plan ~~that includes the concrete batch plant and the above-ground fuel depot.~~

Proposed Revision to WORKER SAFETY-2

Rationale:

The Modified Project will not contain an above-ground fuel depot. Accordingly, the Fire Prevention Plan in **WORKER SAFETY-2** does not need to address an above-ground fuel depot, as it did for the Approved Project. However, the Emergency Action Plan will include measures to address electrical shock hazards in the event of a fire.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- An Emergency Action Plan that includes safety measures, engineering controls, and BMPs to address potential electrical shock hazards in the event of a fire;
- Fire Prevention Plan ~~that includes the fuel depot should the project owner elect to maintain and operate the fuel depot during operations (8 Cal Code Regs. § 3221); and~~

Proposed Revision to WORKER SAFETY-6

Rationale:

Condition of Certification **WORKER SAFETY-6** calls for a second access road to the site. This need was driven by the presence of HTF and natural gas on the site, leading to the potential for a fire event that could have potentially blocked the primary access road. As these hazards have been eliminated, there is no longer a need for a redundant access road, and bullet "b" should be eliminated and the reference to the second road in bullet "c" should be deleted. The references to the second road in the paragraphs following bullet "c" should also be deleted.

WORKER SAFETY-6 The project owner shall:

a. Provide a second access gate for emergency personnel to enter the site. This secondary access gate shall be at least one-quarter mile from the main gate.

~~b. Provide a second access road that comes to the site. This road shall be at a minimum an all-weather gravel road and at least 20 feet wide.~~

~~c~~ **b**. Maintain the main access road ~~and the second road~~ and provide a plan for implementation.

Plans for the secondary access gate, the method of gate operation, gravel road, and to maintain the road~~s~~ shall be submitted to the Riverside County Fire Department for review and comment and to the CPM for review and approval.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the Riverside County Fire Department and the CPM preliminary plans showing the location of a second access gate to the site, a description of how the gate will be opened by the fire department, and a description and map showing the location, dimensions, and composition of the main road, and the gravel road to the second gate.

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4.5 HAZARDOUS MATERIALS MANAGEMENT

As described below impacts of the Modified Project to hazardous materials management are expected to be less than or equal to those of the Approved Project and will remain less than significant.

4.5.1 Project Changes Related to Hazardous Materials Management

The Modified Project proposes to utilize either fixed tilt or single-axis tracking PV modules for the Modified Project's electrical generation. The elimination of the solar thermal technology and power blocks will reduce the need for some hazardous materials storage, management, and disposal during operation. Hazardous materials used during construction will be the same for the Modified Project as for the Approved Project, although used in smaller amounts due less intensive grading and construction of a smaller area. A description of the types, quantities, and methods for management and disposal is discussed in Sections 2.10.1.3 and 2.10.1.4 of this Petition.

4.5.2 Changes in Environmental Impacts

4.5.2.1 Construction

The types of hazardous materials to be used during construction for the Modified Project are similar in type as the hazardous materials as contemplated for the Approved Project and lower in quantity due to the smaller project size. Therefore, the Modified Project's impacts to public health and safety associated with the use of hazardous materials during construction would be similar to or less than the impacts from the Approved Project and would remain less than significant.

4.5.2.2 Operations

The types of hazardous materials that would be used during operation under the Modified Project would be less than those assumed for the Approved Project because the power blocks and HTF would be completely eliminated.

As discussed in this Petition, NextEra Blythe Solar has not yet selected the specific panel for installation at the plant site. Some manufacturers employ the compound CdTe as the semiconductor material within the modules. Cadmium telluride is a stable compound of cadmium (Cd) and tellurium (Te). Cd, produced primarily as a byproduct of zinc refining, is a human carcinogen as an independent element, but when combined with Te, a byproduct of copper refining, forms the stable, non-hazardous compound CdTe. In module manufacturing Cd, a hazardous material, is safely sequestered in the form of CdTe in a module for the over 30-year lifetime of the module, after which it is recycled for use in new solar modules or other new products.

In addition, CdTe's physical properties, including its extremely low vapor pressure and high melting point, along with its insolubility in water, limit its mobility. Furthermore, the very thin layer of CdTe in PV modules is encapsulated between two protective sheets of glass. As a result, the risk of health or environmental exposure in fires, from accidental breakage, or from leaching is de minimus. The exposure routes to CdTe in modules are limited; furthermore, recent toxicological testing indicates that CdTe is significantly less toxic than elemental Cd.

First Solar, a manufacturer that uses CdTe, employs a collection and recycling program to ensure that PV materials stay in the production cycle and out of municipal landfills. The program is designed to recover approximately 95 percent of the semiconductor material and 90 percent of the glass. The remaining materials (e.g., glass fines, dust) are collected in high-efficiency particulate air filters and are disposed of properly. Commercial scale recycling facilities are currently in operation at each of First Solar's manufacturing facilities to recycle manufacturing materials. If NextEra Blythe Solar elects to use a PV panel that uses CdTe, it would participate in that manufacturer's recycling program.

In 2009, an in-depth assessment of the environmental, health, and safety aspects of First Solar's CdTe PV systems and manufacturing operations was carried out under the authority of the French Ministry of Ecology, Energy, Sustainable Development, and the Sea. It concluded that, "During standard operation of CdTe PV systems, there are no cadmium emissions – to air, to water, or to soil. In the exceptional case of accidental fires or broken panels, scientific studies show that cadmium emissions remain negligible. Accordingly, large-scale deployment of CdTe PV can be considered safe to human health and the environment."[4]

A 2005 peer review of three major published studies on the environmental profile of CdTe PV organized by the European Commission, Joint Research Center and sponsored by the German Environment Ministry concluded "…CdTe used in PV is in an environmentally stable form that does not leak into the environment during normal use or foreseeable accidents, and therefore can be considered the environmentally safest current use of cadmium." This review also concluded that "Large scale use of CdTe photovoltaic modules does not present any risks to public health and the environment."[5]

Independent analysis also indicates that CdTe modules do not pose a risk during fires. CdTe has an extremely low vapor pressure, high boiling and melting points, and is

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[4] Summary Report, "Environmental, Health, and Safety (EHS) Aspects of First Solar Cadmium Telluride (CdTe) Photovoltaic (PV) Systems," carried out under the authority of the French Ministry of Ecology, Energy, Sustainable Development, and the Sea, July 2009.

[5] Summary Report, "Peer Review of Major Published Studies on the Environmental Profile of Cadmium Telluride (CdTe) Photovoltaic (PV) Systems," European Commission, Joint Research Centre.

almost completely encapsulated by molten glass when exposed to fire. Exposure of pieces of CdTe PV modules to flame temperatures from 1,400°F to 2,000°F illustrated that CdTe diffuses into glass, rather than being released into the atmosphere. Higher temperatures produce further CdTe diffusion into the glass.[6]

4.5.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

4.5.4 Conditions of Certification

Minor modifications are needed for Conditions of Certification **HAZ-1** and **HAZ-6** to provide a corrected table reference within this PTA and to update the description of on-site security. In addition, Condition of Certification **HAZ-4** should be deleted as it pertains solely to the use of HTF, which would not be used under the Modified Project.

Proposed Revision to HAZ-1, Appendix A

Rationale:

HAZ-1 refers to an Appendix A list of chemicals. Appendix A is no longer up to date. Therefore the following language changes are recommended to the COC:

> The project owner shall not use any hazardous materials not listed **in Table 2-6 and 2-7 of the Revised PTA (April, 2013)** ~~below~~, or in greater quantities or strengths than those identified by chemical name in **Tables 2-6 or 2-7**~~, Appendix A below~~, unless approved in advance by the Compliance Project Manager (CPM).

Proposed Revision to HAZ-2

Rationale:

Because the Modified Project no longer uses HTF, the requirements for a Process Safety Manual no longer apply. Therefore the following language change is recommended to the COC:

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[6] Fthenakis, V., Fuhrmann, M., Heiser, J., Lanzirotti, A., Fitts, J., and Wang, W.,""Emissions and Encapsulation of Cadmium in CdTe PV Modules During Fires," *Progress in Photovoltaics: Research and Applications*, 6, 99-103 (1998).

The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), a Spill Prevention, Control, and Countermeasure Plan (SPCC) ~~and a Process Safety Management Plan (PSMP)~~ to the Riverside County Environmental Health Department (RCEHD), the Riverside County Fire Department (RCFD), and the CPM for review.

Proposed Elimination of HAZ-4

Rationale:

Condition of Certification **HAZ-4** should be deleted as it pertains solely to use of HTF which will be eliminated from the Modified Project.

Proposed Revisions to HAZ-6

Rationale:

Condition of Certification **HAZ-6** outlines steps related to operations security. As the Modified Project will contain much lower hazards, several of the outlined items are no longer necessary or will have no real meaning as written. Recommended changes to this Condition include elimination of the Power Block reference in item 1 and elimination of reference to a control room (replace with O&M building) in item 9. **HAZ-6** also proceeds on the assumption that the project will be manned 24 hours a day, as was the case for the Approved Project. As the Modified Project will not be manned 24 hours per day, item 10 should be deleted in its entirety.

HAZ-6 The project owner shall also prepare a site-specific security plan for the commissioning and operational phases that will be available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high around the ~~Power Block and~~ Solar Field;
2. Main entrance security gate, either hand operated or motorized;
3. Evacuation procedures;
4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. Written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site;

6.

A. a statement (refer to sample, ATTACHMENT A), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy;

B. a statement(s) (refer to sample, ATTACHMENT B), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site;

7. Site access controls for employees, contractors, vendors, and visitors;
8. A statement(s) (refer to sample, ATTACHMENT C), signed by the owners or authorized representative of hazardous materials transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;
9. Closed circuit TV ~~(CCTV)~~ monitoring system, recordable, and viewable in the ~~power plant control room~~ **O&M building** ~~and security station (if separate from the control room)~~ with cameras able to pan, tilt, and zoom, have low-light capability, and are able to view the outside entrance to the ~~control room~~ **O&M building**, and the front gate**.**~~; and~~

~~10. Additional measures to ensure adequate perimeter security consisting of either:~~

~~A. security guard(s) present 24 hours per day, seven days per week; or~~

~~B. power plant personnel on site 24 hours per day, seven days per week, and~~

~~one of the following:~~

~~perimeter breach detectors~~

~~or~~

~~CCTV able to view both site entrance gates and 100 percent of the power block perimeter.~~

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to those security plans. The CPM may authorize modifications to these measures, or may require additional measures such as protective barriers for critical power plant components depending upon circumstances unique to the facility or in response to industry-related standards, security concerns, cyber security, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Corporation, after consultation with both appropriate law enforcement agencies and the Applicant.

Verification: At least 30 days prior to the initial receipt of **operations related** hazardous materials on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

~~SAMPLE CERTIFICATION (Attachment A) – SEE PAGE 200 of Document~~

~~SAMPLE CERTIFICATION (Attachment B) – SEE PAGE 201 of Document~~

~~SAMPLE CERTIFICATION (Attachment C) – SEE PAGE 202 of Document~~

~~Hazardous Materials Appendix A Hazardous Materials Proposed for Use at the BSPP – SEE PAGES 188-198~~

4.6 WASTE MANAGEMENT

As described below, the Modified Project's impacts to waste management are expected to be less than those of the Approved Project, and will remain less than significant.

4.6.1 Project Changes Related to Waste Management

The only changes proposed by the Modified Project relevant to waste management are the elimination of the wastes associated with operation of the power blocks and the elimination of the solar field's use of HTF. Since HTF will no longer be used, the Modified Project will no longer include two land treatment units for HTF spills, which will also eliminate the need for a waste management program tailored specifically to address such spills.

Construction wastes are expected to be similar to those identified in the Commission Final Decision for the Approved Project.

4.6.2 Changes in Environmental Impacts

4.6.2.1 Construction

The types and quantities of wastes generated and the management methods for such wastes during construction of the Modified Project would be consistent with the wastes and management methods contemplated for the Approved Project. For both the Approved Project and the Modified Project, solid waste, non-recyclable waste, and hazardous and non-hazardous waste generated during construction would be treated in a similar manner. Therefore, the Modified Project's waste management impacts would be less than or equal to impacts under the Approved Project and would remain less than significant.

4.6.2.2 Operations

The types of wastes generated and the management methods for such wastes during operation of the Modified Project would be consistent with the wastes and management methods contemplated for the Approved Project, with the exception of HTF related wastes. The quantities of wastes would be reduced under the Modified Project and there would be no need to manage the waste associated with releases of HTF. There would also be a reduction in sanitary wastewater amounts compared to the Approved Project due to the reduction in the Project workforce. Because the Modified Project would eliminate the use of a steam turbine and an electric generator, the wastes specific to that technology would be eliminated (e.g., waste associated with power control units, etc.). Therefore, the Modified Project's waste management impacts from operation are anticipated to be substantially less than the impacts under the Approved Project and would remain less than significant.

4.6.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified. The LORS related to the delivery, storage, handling, and disposal of HTF-related wastes that were required for the Approved Project would not apply to the Modified Project as HTF would not be used.

4.6.4 Conditions of Certification

Condition of Certification **WASTE-8** should be deleted since HTF and the land treatment units have been eliminated from the Modified Project.

Section 5 ENVIRONMENTAL ANALYSIS

The following sections provide a description of the modifications proposed to the BSPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision. As discussed in Section 2 of this Petition, NextEra Blythe Solar has not yet selected the exact combination of fixed tilt and single access tracking PV modules for the site. Such selection will be made as part of the final design of the BSPP. However, where there are differences between the two systems, NextEra Blythe Solar has included a comparison of each for the Commission to consider a "worse-case" for each technical area. Ultimately the selection of either fixed-tilt or tracking PV systems or a combination of both systems will not affect the amount of land that is assumed to be considered impacted and upon which the biological, cultural, geological, and paleontological resources mitigation is based.

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5.1 BIOLOGICAL RESOURCES

This section describes the reduction in the potential impacts to biological resources that would be expected to occur in association with the Modified Project as a result of the change in technology and reduction in acreage, versus those of the Approved Project. As demonstrated below in all cases, the Modified Project's potential environmental impacts are less than those identified in the Commission Final Decision for the Approved Project.

5.1.1 Summary of Project Changes Related to Biology

5.1.1.1 Change in Technology

As described in Section 2 of this Petition, NextEra Blythe Solar is proposing to replace all of the solar thermal facilities with PV. The four power blocks including the cooling tower will be eliminated. The PV layout will be constructed in four phases with a total of approximately 485 MW (three 125-MW units and one 110-MW unit) instead of four solar thermal power plants generating 250 MW each. The change in technology to PV will result in a reduction of impacts to special-status wildlife, plants, and natural communities as compared to those for the Approved Project due to the reduction in the Modified Project footprint:

- Support facilities (transmission line, telecommunications, new access road, possible upgraded Black Rock Road access, on-site water treatment system [including fewer evaporation ponds], O&M building and parking area, internal access roads, groundwater wells), will occur for both projects and result in relatively the same or lower impacts.
- Construction of the PV solar site and linear features will result in permanent and semi-permanent losses of habitat less than those for the Approved Project.
- As with the Approved Project, the solar site will be fenced with exclusionary fencing to exclude, at a minimum, desert tortoises. Fencing will also remove the solar site from use by most species currently using the site and will potentially disrupt movement patterns of wildlife outside the site in the same manner as contemplated for the Approved Project.
- Effects on desert tortoises, which will be located during clearance surveys and translocated per the approved translocation plan, will be less than those anticipated for the Approved Project.
- No additional special-status species, including state or federally listed species, will be affected by the change in technology, as none are expected at the Modified Project.
- Impacts to other protected and/or special-status species or biological resources – including but not limited to plants, natural communities,

jurisdictional state waters, desert kit foxes, American badgers, Mojave fringe-toed lizards, Couch's spadefoot toads, burrowing owls, and nesting birds – will be the same as or less than the Approved Project and minimized identically for both projects by a combination of surveying, monitoring, avoidance, removal, and/or compensatory mitigation.

- In addition to loss of habitat and potential loss of individuals of low-mobility species, behaviors of animals in the Project vicinity may be disturbed by activities and noise associated with construction of either project. Operations on the Modified Project will result in activity, lights, and ongoing maintenance activities that will affect wildlife the same or less than that for solar thermal technology.
- The potential for indirect impacts, including but not limited to, weed expansion, predator increases, and dust deposition, will be less than the Approved Project.
- The potential for impacts to biological resources that may result from lowered groundwater levels (e.g., springs, seeps) will be less with the Modified Project because of lower water use for PV. The Approved Project projected an annual use of 600 AFY while the Modified Project expects to use between 30 to 40 AFY.
- Impacts to existing topography and hydrology will be less than that for solar trough technology because the PV structures allow for substantially less grading than solar trough structures.

5.1.1.2 Change in Grading Plan

The BSPP site no longer needs the type of extensive grading that was necessary to accommodate the solar trough technology. As described in Section 5.2 of this Petition, the grading necessary to accommodate either the fixed tilt or single access tracking PV systems is considerably less than that required for the original BSPP, which will allow much of the storm water from runoff events to flow through the site with minimal drainage structures. Additionally, because water will be allowed to flow through the site more naturally, the originally proposed drainage structures will not be installed.

5.1.1.3 Reduction in Acreage

As detailed in Section 2 of this Petition, the footprint for the Modified Project will be smaller than, and entirely within the footprint of, the Approved Project. For example, the Modified Project would impact approximately 2,950 fewer acres of desert tortoise habitat and 338 fewer acres of state waters than the Approved Project. All linear facilities will not change from the Final Decision, as modified by an Amendment approved by the Commission on August 30, 2011, as a result of the switch to PV technology.

In November 2011, BSPP completed the acquisition of 858.5 agency-approved acres of off-site mitigation land – 89.5 acres more than the 769 acres required for Phase 1A per Condition of Certification (COC) BIO-28.

5.1.2 Summary of Special-status Summer Annual Plant Surveys

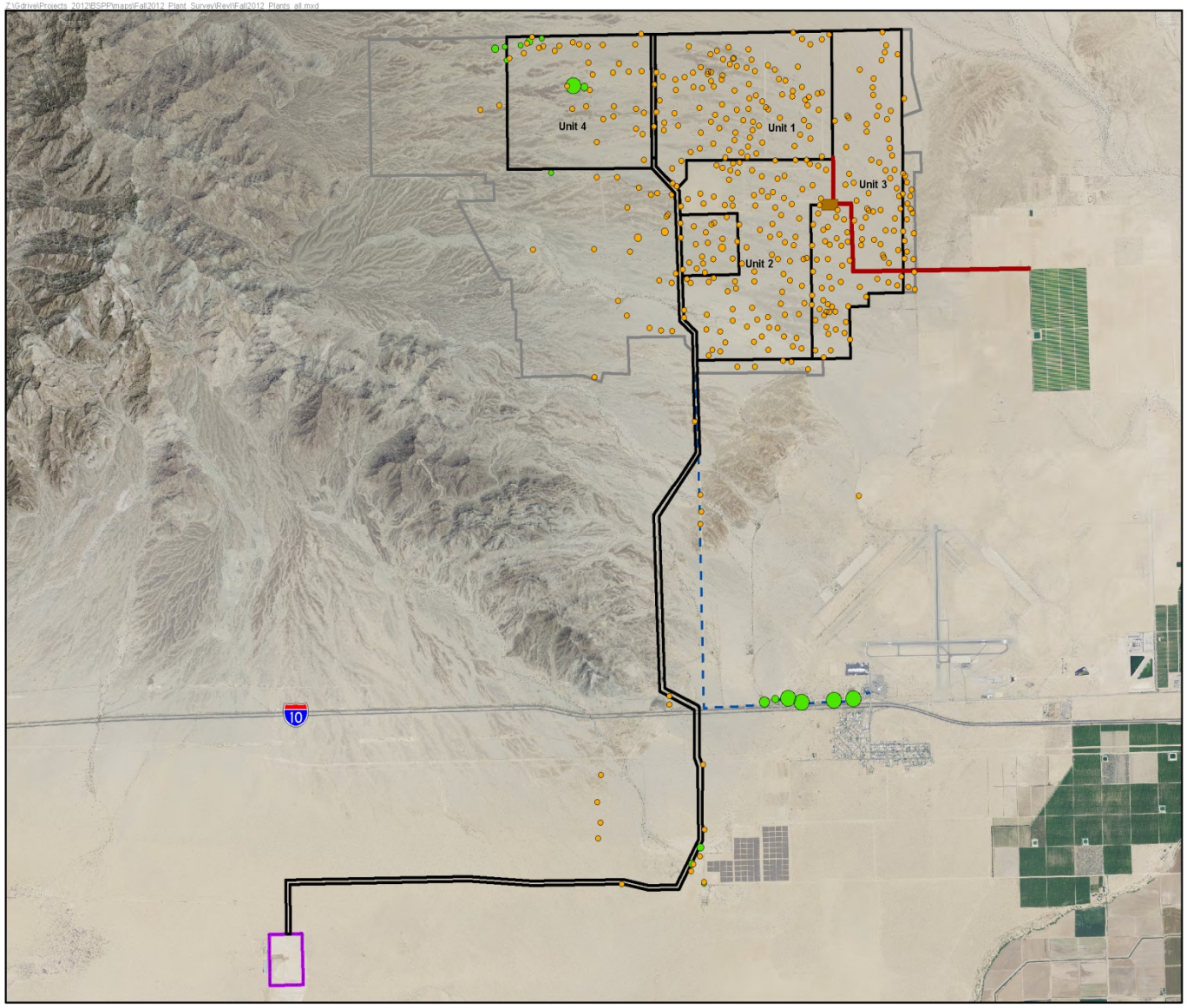
Biological surveys for the BSPP took place in 2009 and 2010; however, additional surveys for special-status summer annual (i.e., fall blooming) plants were conducted in August and September 2012. These surveys were conducted because there was insufficient rainfall to trigger germination at the time PVSI conducted plant surveys in Fall 2010 to comply with the CEC's COC BIO-19. Surveys were conducted according to methods outlined in BIO-19. Surveyors did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, surveyors did observe two special-status plants within the Modified Project Area:

- Abrams' spurge (*Euphorbia* [*Chamaesyce] ambramsiana)* California Natural Diversity Database [CNDDB] G4/S2S3; California Native Plant Society [CNPS] Rare Plant Rank 2.2.
- Desert unicorn plant (*Proboscidea althaeifolia):* CNDDB G5/S3.3; CNPS Rare Plant Rank 4.

More than 2,121 Abrams' spurge plants were observed within the Modified Project footprint during surveys, all of which were within Unit 4 (Figure 5.1-1; Table 5.1-1). These plants are part of a population that extends north for at least 2 miles beyond the Project. An extensive population of 85+ individuals was observed south of I-10 along the gen-tie route; however, all were outside of the footprint. Outside of the Project footprint, over 14,000 plants were observed along the north side of Black Rock Road, north of I-10. This species' rarity ranking is most likely a product of undersampling and survey observations indicate that this species is more widespread and common that originally thought.

TABLE 5.1-1
SPECIAL-STATUS SUMMER ANNUAL PLANTS OBSERVED WITHIN THE MODIFIED PROJECT DURING 2012

Species	Number of Plants Observed				
	Unit 1	Unit 2	Unit 3	Unit 4	Linear Facilities
Abrams' Spurge	0	0	0	>2,121	0
Desert Unicorn Plant	359	376	336	84	48



BLYTHE SOLAR
POWER PROJECT
RIVERSIDE COUNTY, CA

Legend

- Approved Project (Survey Area)
- Modified Project
- Access Road Shared with Other Solar Projects
- Distribution Line
- Well Pad
- SCE Colorado River Substation

Plant Species

- Abrams' Spurge
- Desert unicorn plant

Number of Plants Observed

- <25 Plants
- 25-100 Plants
- 101-500 Plants
- 501-1,000 Plants
- >1,000 Plants

0 2,500 5,000 10,000
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: USDA, TTEC

FIGURE 5.1-1
SPECIAL-STATUS PLANTS OBSERVED
AUGUST/SEPTEMBER 2012

TETRA TECH

Surveyors observed 1,203 desert unicorn plants within the Modified Project footprint during surveys (Figure 5.1-1; Table 5.1-1), primarily in runnels and swales that held water for a short time. This species was common and evenly distributed throughout the Modified Project with the exception of the sand dunes and sand sheets south of I-10. Observations were considered part of the same population that extends north and east of the Modified Project where plants can be found in suitable habitat. As a CNPS Rare Plant Rank 4, it requires CEQA consideration only if the population has local or regional significance (California Department of Fish and Game[7] [CDFG] 2009). Based on the abundance and distribution within the BSPP and nearby areas, the BSPP population is not considered locally or regionally significant.

Detailed methods and results are located in the BSPP *2012 Special-status Summer Annual Plant Survey Report*, attached as Appendix F.

5.1.3 Changes in Environmental Impacts

The reduction of the Project footprint will result in a reduction of the number of acres disturbed that require habitat compensation. The revised impacts to vegetation and other land cover were recalculated to reflect the Modified Project footprint (Table 5.1-2). These acreages are derived from and consistent with the impact acres presented in Table 2-1. The impact reductions and associated mitigation acres are reflected in the proposed revisions to **BIO-28** (see Section 5.1.5, below).

5.1.4 Compliance With LORS

In the Commission Decision, the Commission concluded that, with the implementation of the Conditions, the Approved Project would comply with all applicable LORS. Finding 2 at page 247 of the Final Decision states:

> With implementation of mitigation measures as appropriate, construction and operation of the planned substation and associated gen-tie connection area project would be expected to comply with all applicable LORS, and would not be expected to result in any significant adverse direct, indirect, or cumulative impacts to biological resources.

There are no new LORS that would affect the Commission's finding. An amendment to the Commission's Final Decision would also amend the Incidental Take Permit and the Lake and Streambed Alteration Agreement from the CDFW.

Additionally, the BSPP obtained a Jurisdictional Determination from the United States Army Corps of Engineers that there are no waters of the United States on the BSPP site, included in Appendix G.

[7] CDFG officially changed their name to California Department of Fish and Wildlife (CDFW).

TABLE 5.1-2
VEGETATION AND LAND COVER IMPACT/MITIGATION ACRES FOR THE MODIFIED PROJECT

Vegetation Community/Land Cover	Impact Acres							Total	Mitigation Ratio	Mitigation Acres							
	Unit 1	Unit 2	Unit 3	Unit 4	Linear Facilities (north of switchyard)	Linear Facilities (south of switchyard)	Distribution Line and Well Pad			Unit 1	Unit 2	Unit 3	Unit 4	Linear Facilities (north of switchyard)	Linear Facilities (south of switchyard)	Distribution Line and Well Pad	Total
Ephemeral "Riparian" Drainages																	
Desert Dry Wash Woodland	0.0	4.7	0.0	14.8	0.0	0.7	0.9	21.0	3:1	0.0	14.0	0.0	44.3	0.0	2.1	2.7	63.1
Vegetated Ephemeral Swales (Creosote Bush - Big Galleta Grass Association)	90.8	55.6	5.0	75.2	1.5	0.7	0.0	228.8	1.5:1	136.1	83.4	7.5	112.8	2.3	1.1	0.0	343.2
Unvegetated Ephemeral Dry Wash	0.0	3.0	0.0	0.4	0.0	0.0	0.0	3.3	1:1	0.0	3.0	0.0	0.4	0.0	0.0	0.0	3.3
Subtotal Ephemeral "Riparian" Drainages	90.8	63.2	5.0	90.3	1.5	1.4	0.9	253.2	-	136.1	100.4	7.5	157.5	2.3	3.2	2.7	409.7
Upland Vegetation																	
Sonoran Creosote Bush Scrub	946.7	878.0	1045.1	795.8	20.9	24.3	11.9	3722.7	1:1	946.7	878.0	1045.1	795.8	20.9	24.3	11.9	3722.7
Stabilized and Partially Stabilized Desert Dunes	0.0	0.0	0.0	0.0	0.0	25.3	0.0	25.3	3:1	0.0	0.0	0.0	0.0	0.0	75.9	0.0	75.9
Subtotal Upland Vegetation	946.7	878.0	1,045.1	795.8	20.9	49.6	11.9	3,748.0	-	946.7	878.0	1,045.1	795.8	20.9	100.2	11.9	3,798.6
Other Cover Types																	
Agricultural Land	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developed/Disturbed	27.8	109.5	0.4	0.0	0.0	19.9	8.3	165.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Other Cover Types	27.8	109.5	0.4	0.0	0.0	19.9	10.6	168.2	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,065.2	1,050.8	1,050.5	886.1	22.4	70.9	23.4	4,169.3	-	1,082.8	978.4	1,052.6	953.3	23.2	103.4	14.6	4,208.3

5.1.5 Conditions of Certification

The conforming changes to the Conditions for the Modified Project related to biological resources are necessary to adjust the compensation acreages by the new project phases and to address other project design changes that would reduce effects on biological resources. In addition, the Commission will need to correct the security requirements associated with the new compensation acreages and any recent information supplied by the Renewable Energy Action Team (REAT) agencies. Specific rationale for changes to certain Conditions, if not readily apparent, is provided below. A complete set of all Conditions of Certification, including both revised and unchanged Conditions will be submitted under separate cover.

Proposed Revisions to BIO-8

Rationale:

BIO-8, #3 has been revised to reflect the same speed limits recently approved for the Genesis Solar Energy Project and the McCoy Solar Energy Project**. BIO-8, #8** has been revised to remove the reference to steam blowing, since that activity will not occur in the Modified Project.

BIO-8, #3

> Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour ~~within the project area,~~ on **dirt** maintenance roads for linear facilities, or on **dirt** access roads to the project site. **Paved roads shall not exceed 45 miles per hour; speed limits will be lowered during the tortoise's most active period (April through May and September through October [USFWS 2010]) to 35 miles per hour.** Speed limit signs shall be posted on new access roads to the site.

BIO-8, #8

> Minimize Noise Impacts ~~A continuous low-pressure technique shall be used for steam blows, to the extent possible, in order to reduce noise levels in sensitive habitat proximate to the Blythe Project.~~ Loud construction activities ~~(e.g., unsilenced high pressure steam blowing and~~ pile driving, or other~~)~~ shall be avoided from February 15 to April 15 when it would result in noise levels over 65 dBA in nesting habitat (excluding noise from passing vehicles).

Proposed Revisions to BIO-9

Rationale:

BIO-9, #1 has been revised to clarify that biological monitors shall be allowed to conduct desert tortoise clearance surveys.

BIO-9, #1 **Desert Tortoise Exclusion Fence Installation.** To avoid impacts to desert tortoises, permanent exclusion fencing shall be installed along the permanent perimeter security fence (boundaries) as phases are constructed. Temporary fencing shall be installed along any subset of the plant site phasing that does not correspond to permanent perimeter fencing. Temporary fencing shall be installed along linear features unless a Biological Monitor is present in the immediate vicinity of construction activities for the linear facility. All fencing shall be flagged and surveyed within 24 hours prior to the initiation of fence construction. Clearance surveys of the desert tortoise exclusionary fence and utility rights-of-way alignments shall be conducted by the Designated Biologist~~(s)~~ **or biological monitors** using techniques outlined in the Desert Tortoise Field Manual (USFWS 2009) and may be conducted in any season with USFWS and ~~CDFG~~ **CDFW** approval. Biological Monitors may assist the Designated Biologist under his or her supervision. These fence clearance surveys shall provide 100-percent coverage of all areas to be disturbed and an additional transect along both sides of the fence line. Disturbance associated with desert tortoise exclusionary fence construction shall not exceed 30 feet on either side of the proposed fence alignment. Prior to the surveys the project owner shall provide to the CPM, ~~CDFG~~ **CDFW**, and USFWS a figure clearly depicting the limits of construction disturbance for the proposed fence installation. The fence line survey area shall be 90 feet wide centered on the fence alignment. Where construction disturbance for fence line installation can be limited to 15 feet on either side of the fence line, this fence line survey area may be reduced to an area approximately 60 feet wide centered on the fence alignment. Transects shall be no greater than 15 feet apart. Desert tortoise located within the utility ROW alignments shall be moved out of harm's way in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009). Any desert tortoise detected during clearance surveys for fencing within the project site and along the perimeter fence alignment shall be translocated and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan (**BIO-10**). Tortoise shall be handled by the Designated Biologist(s) in accordance with the USFWS' Desert Tortoise Field Manual (USFWS 2009).

Proposed Revision to BIO-10

Rationale:

There are four phases to the Modified Project, instead of three.

BIO-10

The project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of the CPM. The Plan shall include guidance specific to each of the ~~three~~ **four** phases of project construction, as described in BIO-28 (Phasing), and shall include measures to minimize the potential for repeated translocations of individual desert tortoises.

Proposed Revision to BIO-12

Rationale:

BIO-12 has been revised so that it refers to BIO-28 for impact and mitigation acres. In addition, the desert tortoise habitat that the BSPP would impact does not contribute to desert tortoise population/genetic connectivity or in any way serve as a linkage between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands. Accordingly, NextEra Blythe Solar should not be required to secure mitigation lands that contribute to such connectivity/linkages. Additionally, BIO-12 mitigation security wording has been changed to allow for the security amounts to be revised.

BIO-12 To fully mitigate for habitat loss and potential take of desert tortoise, the project owner shall provide compensatory mitigation at a 1:1 ratio for impacts to ~~6,957 7,277 acres of~~ **desert tortoise habitat, as outlined in BIO-28,** adjusted to reflect the final project footprint. For purposes of this Condition, the project footprint means all lands disturbed in the construction and operation of the Blythe **Solar Power** Project, including all linears, as well as undeveloped areas inside the project's boundaries that will no longer provide viable long-term habitat for the desert tortoise. …

and

1. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition in fee title or in easement shall:
    a. be within the Colorado Desert Recovery Unit, ~~with potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat,~~

~~known populations of desert tortoise, and/or other preserve lands~~;

3. h. Mitigation Security. …..Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG, BLM and the USFWS, of the form of the Security. **Security shall be provided in amounts of (TO BE REVISED)** ~~Security shall be provided in the amounts of $2,374,672 for Phase 1A; $9,248,560 for Phase 1B, and $9,859,984 for Phase 2. These Security estimates are~~ based on the most current guidance from the REAT agencies (Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010) and may be revised with updated information. This Security estimate reflects the amount that would be required for Security if the project owner acquired the ~~6,958 acres of~~ mitigation lands itself. The amount of security shall be adjusted for any change in the project footprints for each phase as described above.

   The project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose, which includes a NFWF administrative fee, must be made **in amounts of (TO BE REVISED) that are based on the most current guidance from the REAT agencies.** ~~the amounts of $2,465,611 for Phase 1a; $9,481,161 for Phase 1b; and $10,105,186 for Phase 2~~.

Proposed Revisions to BIO-13:

Rationale:

The changes to **BIO-13** are a result of NextEra Blythe Solar's request to delete **BIO-21** (see below) because potential impacts to bighorn are no longer expected and a water source in the McCoy Mountains is no longer necessary. Additionally, language has been added to allow for a per phase payment for raven mitigation.

BIO-13 The project owner shall implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of the CMP, in consultation with BLM, USFWS and ~~CDFG~~ **CDFW**. The draft Raven Plan submitted by the Applicant (AECOM **20**10a,

Attachment DR-BIO-49) shall provide the basis for the final Raven Plan, subject to review, revisions**,** and approval from BLM, the CPM, ~~CDFG~~ **CDFW**, and USFWS. The Raven Plan shall include but not be limited to a program to monitor raven presence in the project vicinity, determine if raven numbers are increasing, and to implement raven control measures as needed based on that monitoring. The purpose of the plan is to avoid any project-related increases in raven numbers during construction, operation, and decommissioning. ~~In addition to monitoring at the project site, the Plan shall address raven monitoring and control at the new water source proposed in the McCoy Mountains in staff's proposed Condition of Certification BIO-21~~. The project owner shall also provide funding for implementation of the USFWS Regional Raven Management Program, as described below.

and

USFWS Regional Raven Management Program. The project owner shall submit **a per phase** payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program.

Verification: Current estimate of the fee for the USFWS Regional Raven Management Program is $105/acre. ~~Phase 1a disturbance is estimated to be 769 acres. Phase 1b disturbance is estimated to be 2,995 acres. Phase 2 disturbance is estimated to be 3,193 acres~~.

Proposed Revisions to BIO-15

Rationale:

Wording needs to be changed since there will not be mirror-like surfaces. Additionally, the language regarding carcass searches has been deleted for the following reasons; these tasks are not warranted for a PV project, and details on survey protocol should be identified in the Avian Protection Plan itself, as opposed to the COCs.

BIO-15

The project owner shall prepare and implement an Avian Protection Plan to monitor the death and injury of birds from collisions with facility features such as transmission lines and **PV panels** ~~reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight.~~ The monitoring data shall be used to inform an adaptive management program that would avoid and minimize project-related avian impacts. The study design shall

be approved by the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP and implemented. ~~The Avian Protection Plan shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The plan shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias.~~

Proposed Revisions to BIO-17

Rationale:

Due to the developments in kit fox and badger avoidance, minimization, and management practices since the original Condition was written, this condition has been revised to reflect the mitigation measure that the BLM recently adopted for the McCoy Solar Energy Project.

BIO-17

AMERICAN BADGER AND DESERT KIT FOX ~~IMPACT AVOIDANCE AND MINIMIZATION MEASURES~~ MITIGATION AND MONITORING PLAN

~~To avoid direct impacts to American badgers and desert kit fox, pre-construction surveys shall be conducted for these species concurrent with the desert tortoise surveys. Surveys shall be conducted as described below:~~

1. ~~Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the Project Disturbance Area, including a 20 foot swath beyond the disturbed area, utility corridors, and access roads. If dens are detected each den shall be classified as inactive, potentially active, or definitely active.~~
2. ~~Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox.~~
3. ~~Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance.~~
4. ~~If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand.~~
5. ~~If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and~~

~~backfilled by hand to ensure that no badgers or kit fox are trapped in the den. BLM approval may be required prior to release of badgers on public lands.~~

~~Verification: The project owner shall submit a report to the CPM and CDFG CDFW within 30 days of completion of badger and kit fox surveys. The report shall describe survey methods, results, impact avoidance and minimization measures implemented, and the results of those measures.~~

To avoid direct impacts to American badgers and desert kit fox, the Applicant shall implement the following measures:

1. ***Prepare Desert Kit Fox Management Plan*: At least 45 days prior to construction, the Applicant shall submit a Desert Kit Fox Management Plan that: 1) specifically identifies preconstruction survey methods for kit foxes and large carnivores (e.g., badgers) in the Project area; 2) describes pre-construction and construction-phase passive relocation methods from the site, and; 3) coordinates survey findings prior to and during construction to meet the information needs of wildlife health officials in monitoring the health of kit fox populations. The Plan shall include contingency measures that would be performed if canine distemper were documented in the Project area possible dispersal areas adjacent to the Project site, and measures to address potential kit fox reoccupancy of the site (as documented at the Genesis site). The contents and requirements of the Plan shall be subject to review and approval by the BLM and CDFW.**

2. ***Implement Desert Kit Fox Management Plan:* If canine distemper is not documented in the Project area, the mitigation strategy may utilize passive means or active means with appropriate CDFW authorization to relocate kit foxes from the site. The approach below assumes that canine distemper is not documented in the Project Area.**

   a. ***Pre-Construction Surveys:* Biological Monitors shall conduct pre-construction surveys for desert kit fox and American badger no more than 30 days prior to initiation of construction activities. Surveys shall also consider the potential presence of dens within 100 feet of the project boundary (including utility corridors and access roads) and shall be performed for each phase of construction. If dens are detected each den shall then be further classified as inactive, potentially active, or definitely active. Surveys may be conducted concurrently with desert tortoise clearance surveys.**

b. Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox.

c. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance.

d. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand.

e. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. BLM approval may be required prior to release of badgers on public lands.

f. If an active natal den (a den with pups) is detected on the site, the BLM AO and CDFW shall be contacted within 24 hours to determine the appropriate course of action to minimize the potential for animal harm or mortality. The course of action would depend on the age of the pups, location of the den on the site (e.g., is the den in a central area or in a perimeter location), status of the perimeter site fence (completed or not), and the pending construction activities proposed near the den. A 500-foot no-disturbance buffer shall be maintained around all active dens.

g. The following measures are required to reduce the likelihood of distemper transmission:

i. No pets shall be allowed on the site prior to or during construction, with the possible exception of vaccinated kit fox scat detection dogs during preconstruction surveys, and then only with prior CDFW approval;

ii. Any sick or diseased kit fox, or documented kit fox mortality shall be reported to CDFW and the BLM AO within 8 hours of identification. If a dead kit fox is observed, it shall be collected and stored according to established protocols

distributed by CDFW WIL, and the WIL contacted to determine carcass suitability for necropsy.

Verification: No fewer than 30 days prior to the start of any construction-related ground disturbance activities associated with the new project related facilities, the project owner shall provide the CPM, BLM, and CDFW with a draft American Badger and Desert Kit Fox Mitigation and Monitoring Plan for review and comment.

No fewer than 10 days prior to start of any ground disturbance activities associated with the new project related facilities, the project owner shall provide an electronic copy of the CPM-approved final plan to the CPM and CDFW and implement the plan.

Proposed Revision to BIO-18

Rationale:

BIO-18 language for burrowing owl mitigation land has been modified to be consistent with mitigation for the Genesis Solar Energy Project and the McCoy Solar Energy Project.

BIO-18

4.a. Criteria for Burrowing Owl Mitigation Lands. The terms and Conditions of this acquisition or easement shall be as described in BIO-12 [Desert Tortoise Compensatory Mitigation], with the additional **criteria** that ~~to include: 1)~~ the 39 acres of mitigation land must provide suitable habitat for burrowing owls. ~~and 2) the acquisition lands must either currently support burrowing owls or be no farther than five miles from an active burrowing owl nesting territory.~~ The 39 acres of burrowing owl mitigation lands may be included with the desert tortoise mitigation lands ONLY if **this** ~~these two~~ burrowing owl criteria ~~are~~ is met. If the 39 acres of burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands, the project owner shall fulfill the requirements described below in this Condition.

Proposed Revision to BIO-20

Rationale:

BIO-20 has been revised so that it refers to BIO-28 for impact and mitigation acres.

BIO-20

To mitigate for habitat loss and direct impacts to Mojave fringe-toed lizards the project owner shall provide compensatory mitigation at a 3:1 ratio, **as outlined in BIO-28**, which may include compensation lands purchased in fee or in easement in whole or in part, for impacts to stabilized or partially stabilized desert dune habitat ~~(58~~ **25** ~~acres or the acreage of sand dune/partially stabilized sand dune habitat impacted by the final project footprint~~). If compensation lands are acquired, the project owner shall provide funding for the acquisition in fee title or in easement, initial habitat improvements and long-term maintenance and management of the compensation lands. **The timing of this acquisition or easement shall be as described in BIO-28 (phasing).**

Proposed Elimination of BIO-21

Rationale:

NextEra Blythe Solar requests that Condition of Certification **BIO-21** be deleted because any potential impacts to Nelson's bighorn sheep or their spring foraging habitat have been eliminated by moving the Project boundary at least 1 mile from the base of the McCoy Mountains. The 1-mile boundary was established by the resource agencies during permitting of the BSPP as the distance from the base of the mountains to be considered for impacts to potential big horn sheep foraging habitat.

Proposed Revision to BIO-22

Rationale:

BIO-22 has been revised so that it refers to BIO-28 for impact and mitigation acres.

BIO-22 The project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the state and to satisfy requirements of California Fish and Game Code sections 1600 and 1607.

1. Acquire Off-Site State Waters: The project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes ~~at least~~ **1,384** ~~1,386 acres of state jurisdictional waters, or~~ the area of state waters directly ~~or indirectly~~ impacted by the final project footprint**,** **as detailed in BIO-28**. The project footprint means all lands disturbed by construction and operation of the Blythe Project, including all linears. The parcel or parcels comprising the ~~**1,384**~~ ~~1,386~~ acres of ephemeral washes shall include ~~at least~~ ~~639 acres~~

~~of desert dry wash woodland or~~ the acreage of desert dry wash woodland impacted by the final project footprint at a 3:1 ratio**, as detailed in BIO-28 (phasing).** The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO-12** and the timing associated with **BIO-28** (phasing). Mitigation for impacts to state waters shall be within the Chuckwalla Valley or Colorado River Hydrological Units (HUs), as close to the project site as practicable.

Proposed Revisions to BIO-25

Rationale:

In the original amendment petition, PVSI requested the deletion of **BIO-25** because their PV-design did not include evaporation ponds. The Modified Project will include evaporation ponds; therefore, this Condition should remain and the following text from the original petition for amendment stricken:

> ~~PVSI requests that Condition of Certification BIO-25 be deleted because it applies solely to the use of evaporation ponds and the Modified Project has eliminated the use of evaporation ponds.~~

In addition, netting has posed an entanglement issue at the Desert Sunlight project and the nets have been removed at the request of CDFW. The proposed revision to **BIO-25** will allow for direction from the agencies based on relevant, current data if, in fact, nets are no longer recommended at the time of construction.

BIO-25 **As directed by USFWS, BLM, and CDFW based on data current at the time,** the project owner shall cover the evaporation ponds prior to any discharge with 1.5-inch mesh netting designed to exclude birds and other wildlife from drinking or landing on the water of the ponds…

Proposed Revisions to BIO-28

Rationale:

BIO-28 has been revised to reflect the updated number of phases for the Modified Project and associated impact and mitigation land acreages for each phase. Note that the revised table does not include impact/mitigation acres for indirect impacts to state waters. Such impacts are no longer expected because the installation of PV technology will allow post-construction offsite drainage patterns to mimic pre-construction offsite drainage patterns (see Appendix H).

BIO-28

The project Owner shall provide compensatory mitigation for the total Project Disturbance Area and may provide such mitigation in ~~three~~ **four** phases. ~~Phase 1a, Phase 1b, and Phase 2, as described in Palo Verde Solar 1, LLC's Proposed Phased Construction and Mitigation (Galati & Blek [tn:57593]. Palo Verde Solar 1, LLC's Proposed Phased Construction and Mitigation: Blythe Solar Power Project Docket No. (09-AFC-6), dated July 15, 2010.).~~ "Project Disturbance Area" encompasses all areas to be temporarily and permanently disturbed by the project.

Project construction will occur in ~~three~~ **four** phases that generally follow development of the solar units:

Phase 1:

- **Unit 1,**
- **The linear corridor from where the gen-tie leaves Unit 1 south to the CRS,**
- **The distribution line**

Phase 2:

- **Unit 2**

Phase 3:

- **Unit 3**

Phase 4:

- **Unit 4,**
- **The linear corridor from where the gen-tie leaves Unit 1 to the northern boundary of solar plant site. This portion of the linear corridor would not need to be constructed/disturbed until Unit 4 is constructed.**

~~, with the exception of the first phase of the project. Phase 1a, which will consist of two types of construction areas: (1) linear facilities, including the, access road, and communication lines and (2) non-linear facilities to include a staging/laydown area and a portion of the Unit 1 solar block area.~~

~~Phase 1b shall consist of the remainder of Unit 1 and Unit 2, and Phase 2 shall consist of the remainder of the project (Units 3 and 4).~~ These phases will generally include installation of fencing, clearing, grubbing and grading, and development of common facilities first, followed by the remaining ~~power block~~ units. All construction activities for the non-linear

features during these subsequent phases will occur within desert tortoise exclusionary fenced areas that have been cleared in accordance with USFWS protocols.

The estimated disturbance area for each project Phase and resource type is provided in the tables below. ~~This~~ **These** table**s** shall be refined prior to the start of each construction phase with the disturbance area adjusted to reflect the final project footprint for each phase. Prior to initiating each phase of construction the project owner shall submit the actual construction schedule, a figure depicting the locations of proposed construction and amount of acres to be disturbed. Mitigation acres are calculated based on the compensation requirements for each resource type as described in the above Conditions of Certification – BIO-12 (Desert Tortoise), BIO-20 (Mojave Fringe-toed Lizard), BIO-18 (Western Burrowing Owl), and BIO-22 (State Waters). Compensatory mitigation for each phase shall be implemented according to the timing required by each Condition.

~~Phase~~	~~Desert Tortoise~~		~~MFTL~~		~~WBO~~	
	~~Impact (acres)~~	~~Mitigation (acres)~~	~~Impact (Acres)~~	~~Mitigation (acres)~~	~~Impact (individuals/pairs)~~	~~Mitigation (acres)~~
~~Phase 1a~~	~~769~~	~~769~~	~~0~~	~~0~~	~~0~~	~~0~~
~~Phase 1b~~	~~2,995~~	~~2,995~~	~~58~~	~~174~~	~~1~~	~~19.5~~
~~Phase 2~~	~~3,193~~	~~3,193~~	~~0~~	~~0~~	~~1~~	~~19.5~~
~~Total~~	~~6,958~~	~~6,958~~	~~58~~	~~174~~	~~2~~	~~39~~

~~Phase~~	~~Desert Tortoise~~		~~MFTL~~	
	~~Impact (acres)~~	~~Mitigation (acres)~~	~~Impact (Acres)~~	~~Mitigation (acres)~~
~~Phase 1a~~	~~67~~	~~130~~	~~0~~	~~0~~
~~Phase 1b~~	~~231~~	~~409~~	~~36~~	~~51~~
~~Phase 2~~	~~294~~	~~665~~	~~146~~	~~189~~
~~Total~~	~~593~~	~~1205~~	~~133~~	~~179~~

~~Phase~~	~~State Waters - Direct~~		~~State Waters-Indirect~~		~~Bighorn Sheep~~	
	~~Impact (acres)~~	~~Mitigation (acres)~~	~~Impact (acres)~~	~~Mitigation (acres)~~	~~Impact (acres)~~	~~Mitigation (acres)~~
~~Phase 1a~~	~~67~~	~~130~~	~~0~~	~~0~~	~~27~~	~~27~~
~~Phase 1b~~	~~231~~	~~409~~	~~36~~	~~51~~	~~488~~	~~488~~
~~Phase 2~~	~~294~~	~~665~~	~~146~~	~~189~~	~~414~~	~~414~~
~~Total~~	~~592~~	~~1204~~	~~182~~	~~240~~	~~929~~	~~929~~

Phase	Desert Tortoise		MFTL		WBO	
	Impact (acres)	Mitigation (acres)	Impact (Acres)	Mitigation (acres)	Impact (individuals/ pairs)	Mitigation (acres)
Phase 1	1,074	1,074	25	76	2	39
Phase 2	942	942	0	0	0	0
Phase 3	1,051	1,051	0	0	0	0
Phase 4	908	908	0	0	0	0
Total	3,975	3,975	25	76	2	39

Phase	DDWW		Other State Waters	
	Impact (acres)	Mitigation (acres)	Impact (acres)	Mitigation (acres)
Phase 1	2	6	91	137
Phase 2	5	15	59	86
Phase 3	0	0	5	8
Phase 4	15	45	77	115
Total	22	66	232	346

Verification: The project owner shall not disturb any area outside of the area that has been approved for that phase of construction and for the previously approved phases of construction.

No less than 30 days prior to the start of desert tortoise clearance surveys for each phase, the project owner shall submit a description of the proposed construction activities for that phase to CDFW, USFWS, and BLM for review and to the CPM for review and approval. The description for each phase shall include the proposed construction schedule, a figure depicting the locations of proposed construction and amount of acres of each habitat type to be disturbed.

LITERATURE CITED

AECOM. 2010a. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. 983 pp.

AECOM. 2010b. Blythe Solar Power Project Botanical Survey Report. Prepared for Palo Verde Solar I, LLC. 309 pp.

AECOM. 2010c. Blythe Solar Power Project (09-AFC-6) Responses to CEC Staff Data Requests 45-97. 990 pp.

AECOM. 2010d. Blythe Solar Power Project Jurisdictional Delineation Report for Regulated Waters of the United States and State. Prepared for Palo Verde Solar I, LLC. 126 pp.

California Energy Commission. 2010. Blythe Solar Power Project Commission Decision. CEC-800-2010-009-CMF. 629 pp.

EDAW AECOM. 2009a. Blythe Solar Power Project Biological Technical Report. Prepared for Solar Millennium, LLC. 1213 pp.

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USFWS. 2009. Desert Tortoise Field Manual. Available at: http://www.fws.gov/ventura/species_information/protocols_guidelines/

USFWS. 2010. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). 2010 Field Season. Available at: http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/. 18 pp.

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5.2 WATER RESOURCES

The following section discusses the Modified Project's impacts to water resources as compared to the Approved Project. As described below, potential impacts of the Modified Project to water resources are expected to be less than those of the Approved Project and will remain less than significant.

5.2.1 Project Changes Related to Water Resources

Characteristics of the Modified Project that have the potential to impact water resources differently than the Approved Project include the following:

- replacement of concentrating solar HelioTrough and associated HTF collections and circulation system with PV modules;
- elimination of all the power blocks and cooling towers;
- reduction in the number of water treatment facilities from four to one;
- reduction in the acreage of evaporation ponds from up to 32 acres to up to 12 acres;
- addition of inverter pads;
- less intensive grading of the site to accommodate PV;
- elimination of the large drainage control channels; and
- reduction of water use from up to 600 AFY to up to 40 AFY.

5.2.2 Changes in Environmental Impacts

The Commission Final Decision concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS, and would not result in any unmitigated and significant direct, indirect, or cumulative adverse impacts related to water resources.

The Commission Final Decision addressed three areas within the context of water resources. Those areas are: (1) potential storm water impacts related to flooding/drainage, erosion and sedimentation; (2) water supply and use, including groundwater; and (3) groundwater quality. As described below, in all cases the Modified Project results in less potential impacts than the Approved Project.

5.2.2.1 Storm Water: Flooding, Erosion, and Sedimentation

Preliminary hydraulic analyses were prepared to reflect the effects of the movement of storm water under the Modified Project and are contained in Appendix C to this Petition. Since the grading of the site is minimal under the Modified Project, it is anticipated that

storm water can be controlled without the need for large drainage channels. A Preliminary Grading Plan is provided in Appendix B.

Hydrologic and hydraulic analyses of pre- and post-development drainage conditions were prepared to reflect the effects of the movement of storm water under the Modified Project and are presented in the Pre-/Post Development Hydrology Report included as Appendix C to this Petition. A HEC-HMS hydrologic model was developed to simulate precipitation-induced runoff from tributary drainage basins up-slope of the Modified Project vicinity. Results from the hydrologic model were used as inputs (inflow hydrographs) to a FLO-2D hydraulic model, developed to simulate pre/post-development drainage conditions at and down-slope of the Modified Project site. Pre- and post-development drainage conditions were modeled for the 10-, 25- and 100-year precipitation events.

The Pre-/Post-Development Hydrology Report contains figures showing spatially distributed maximum velocity, maximum flow depth, and the change in both of these parameters resulting from the Modified Project. The report also contains hydrographs showing flow rate vs. time at key locations in the model domain for each of the scenarios modeled.

Results of the updated hydrologic and hydraulic modeling demonstrate that:

1. The Modified Project's potential impacts to flooding, erosion, and sedimentation are substantially less than those of the Approved Project, and
2. The Modified Project will not materially impact the drainage conditions associated with the 10-, 25-, or 100-year precipitation events at or down-slope of the Modified Project site.

5.2.2.2 Water Supply and Use

The Modified Project would use the same groundwater wells as the Approved Project. The amount of groundwater to be used during construction is reduced from 4,100 AF to between 700 and 1,200 AF. Additionally the amount of groundwater used for operations will be reduced from 600 AFY for the Approved Project to a maximum of 40 AFY for the Modified Project.

This reduction in groundwater use for the Modified Project would therefore reduce the potential effects on nearby well owners or on the Palo Verde Groundwater Basin. With the Conditions of Certification contained in the Final Decision which fully mitigated the BSPP groundwater use, the Modified Project will not have a significant impact on groundwater.

5.2.2.3 Wastewater

The following paragraphs demonstrate that the impacts associated with the Modified Project on sanitary wastewater, construction wastewater, and process wastewater systems are reduced and less than significant with the implementation of the existing Conditions of Certification.

5.2.2.4 Sanitary Wastewater

The Modified Project would require fewer workers during construction and operation than would the Approved Project, so lower demands would be imposed on sanitary systems. The Modified Project, like the Approved Project, would utilize temporary portable toilets during construction prior to the installation of a septic tank and leach field.

5.2.2.5 Construction Wastewater

Wastewater generated during construction would consist of equipment wash water but would no longer include piping and vessel hydrostatic test water.

5.2.2.6 Process Wastewater

The Modified Project will no longer construct the 8-acres of evaporation ponds at each power block because the power blocks have been eliminated. However, water treatment facilities will be located in the central portion of the site to produce high quality water for panel washing activities. The wastewater from treatment of the groundwater will be discharged into evaporation ponds that may take up to 12 acres total. The evaporation ponds will be constructed in accordance with the Commission Final Decision which includes the Waste Discharge Requirements (WDRs) from the Colorado River Basin Regional Water Quality Control Board.

Because the Modified Project no longer requires HTF, the Land Treatment Unit has been removed from the design. The WDR Facts, Requirements and Monitoring/Reporting Program (Appendices B, C and D respectively in the Final Decision) have been revised to reflect changes in the Modified Project and are presented in Appendix H of this Petition. Note that while there are changes to the actual waste management units that the WDRs govern (changes that result in reduced environmental impacts), the actual WDRs and associated Monitoring and Reporting Program remain effectively unchanged.

5.2.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. The same conclusion can be made for the Modified Project as

there are neither changed circumstances nor new LORS applicable to the Modified Project since the Final Decision.

There are also no "Waters of the United States" on the BSPP site and, therefore, federal wetland permitting is not required under Section 404, and a 401 Water Quality Certification is not required either for the Approved Project or the Modified Project. See Appendix G.

5.2.4 Conditions of Certification

Minor modifications are needed to Conditions of Certification **SOIL&WATER-4**, **11**, **12**, **16**, and **18** to remove all reference to HTF and to address characteristics of the Modified Project. Each of the proposed modifications is provided below. In addition, Conditions of Certification **SOIL&WATER-13**, **14**, **15**, and **18** would not apply to the Modified Project and should be deleted. The rationale for each of the proposed modifications and deletions of the Conditions of Certification is provided below. See Appendix H for recommended changes to the WDR Facts, Requirements and Monitoring and Reporting Program. No other modifications to the Conditions of Certification are required to accommodate the Modified Project.

Note, only excerpts from the Conditions of Certification which show the revisions are provided in this section, and a comprehensive set of both the revised and unchanged conditions are provided under separate cover.

Proposed Revisions to SOIL&WATER-4

Rationale:

The groundwater use, construction period, and annual average groundwater use during operation have been updated for the Modified Project.

SOIL&WATER-4

The proposed Project's use of groundwater during construction shall not exceed ~~4,100 AF~~ **1,200 AF** during the ~~69~~ **48** months of construction and an annual average of ~~600 afy~~ **40 AFY** during operation. Water quality used for project construction and operation will be reported in accordance with Condition of Certification **SOIL&WATER-18** as applicable to ensure compliance with this Condition.

Proposed Revisions to SOIL&WATER-11

Rationale:

Conditions of Certification **SOIL&WATER-11** should be revised to delete all references to collector channels, conveyance channels, channel confluences, swales, HTF, soil

cement, and drop structures as these features will be eliminated under the Modified Project. Additionally, language pertaining solely to a HEC-HMS model of the Project site should be deleted as detailed FLO-2D modeling of the Modified Project site has been conducted and is presented in Appendix C to this Petition.

SOIL&WATER-11:

The project owner shall provide a revised Drainage Report which includes the following additional information:

A. A detailed explanation of the ~~large~~ differences in pre- and post-project peak discharges and flood volumes along the downstream (east) project boundary ~~as currently indicated by the HEC-HMS results~~.

B. Pre- and post development drainage maps which include the following information:

1. All topographic data used to establish the overall watershed boundaries as well as the sub-basin boundaries.

~~2. A delineation of all onsite watersheds with basin areas, points of concentration, and peak discharge values where the smaller onsite channels discharge into the larger collector and conveyance channels.~~

~~3. Calculations and summarized results for all onsite swales and onsite channels showing adequate depth and non-erosive velocities.~~

2. A specific discussion of how the proposed on-site drainage design will protect the facility from erosion**.** ~~and the possible failure of the facilities resulting in a release of HTF.~~

3. Peak flow values at all downstream points of discharge from the project.

4. Any other information needed to allow a correlation between the ~~HEC-HMS~~ **FLO-2D** model and the proposed drainage design.

~~C. Detailed scour calculations to justify toe-down depths for all soil cement segments, drop structures and any other features where scour is an issue.~~

~~D. Hydraulic analysis of all onsite and offsite channel confluences and a justification of whether or not soil cement or other suitable protection is required.~~

Proposed Revisions to SOIL&WATER-12

Rationale:

Condition of Certification **SOIL&WATER-12** should be revised to delete all references to collector channels, end diffuser structures, and berms as these features will be eliminated under the Modified Project.

SOIL&WATER-12

The project owner shall provide a detailed hydraulic analysis utilizing FLO-2D which models pre- and post-development flood conditions for the 10-, 25- and 100-year storm events. ~~The post-development model must include all proposed collector channels, end diffuser structures and berms.~~ The methods and results of the analysis shall be fully documented in a Technical Memorandum or in the revised Project Drainage Report. Graphical output must include depth and velocity mapping as well as mapping which graphically shows the changes in both of these parameters between the pre- and post development conditions. Color shading schemes used for the mapping must be consistent between all maps as well as clear and easily differentiated between designated intervals for hydraulic parameters. Intervals to be used in the mapping are as follows:

- Flow Depth: at 0.20 ft intervals up to 1 ft, and 0.40 ft intervals thereafter.
- Velocity: 0.5 ft/s intervals

~~A set of figures shall be provided at a scale of no less than one in to 200 ft which show the extents and depths of flows entering the North, South and West channels for the 100-year event. A figure at the same scale shall also be provided for depth, velocity and the relative change in these parameters at and downstream of the four end diffuser structures for the 10-, 25- and 100-year events.~~ Digital input and output files associated with the FLO-2D analysis must be included with all submittals. The results of this analysis shall be used for design of the 30 percent project grading and drainage plans.

Proposed Elimination of SOIL&WATER-13, 14, and 15

Rationale:

Conditions of Certification **SOIL&WATER-13**, **14**, and **15** should be deleted completely because they pertain solely to constructed drainage channels which will not be needed under the Modified Project. Therefore, Drainage Channel Design, Channel Erosion Protection, and a Channel Maintenance Program are not applicable to the Modified Project.

Proposed Revisions to SOIL&WATER-16

Rationale:

The verification time for the results of the modeling effort was changed from 30 days to 90 days following certification of the proposed Modified Project. This change was made because a 90 day response time is a more reasonable time frame in which to determine impacts and develop mitigation responses, and 90 days is still well before pumping begins for the Modified Project.

SOIL&WATER-16

Verification:

Within ~~30~~**90** days following certification of the proposed project, the project owner shall submit to the CPM for their review and approval a report detailing the results of the modeling effort. The report shall include the estimated amount of subsurface water flowing from the surface water due to project pumping. This estimate shall be used for determining the appropriate volume of water for mitigation in accordance with **SOIL&WATER-2**.

Proposed Elimination of SOIL&WATER-18

Rationale:

This COC should be deleted completely because the Modified Project will not serve 25 people or more for more than 6 months. Therefore pursuant to Title 22, Article 3, Sections 64400.80 through 64445 a non-transient, non-community water system is not required for the Modified Project.

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5.3 CULTURAL RESOURCES

This section describes and compares the potential impacts to cultural resources between the Modified Project and the Approved Project. As demonstrated below in all cases, the Modified Project's potential environmental impacts are less than those identified in the Commission Final Decision for the Approved Project.

5.3.1 Summary of Project Changes Related to Cultural Resources

As described in Section 2 of this Petition, NextEra Blythe Solar is proposing to replace all of the solar thermal facilities with PV. The four power blocks including the cooling tower will be eliminated. The PV layout will be constructed in three 125 MW phases and one 110 MW phase (for a total of 485 MW), instead of four solar thermal power plants generating 250 MW each.

As detailed in Section 2 of this Petition, the footprint for the Modified Project will be entirely within the footprint of the Approved Project, and will be substantially reduced by 2,761 acres from 6,831 acres to 4,070 acres.

The linear facilities will not change from the Final Decision as a result of the switch to PV technology except that the natural gas pipeline will no longer be needed. Within the Modified Project footprint, the drainage structures proposed for the Approved Project will not be installed because the BSPP site no longer needs the intensive grading necessary to accommodate the solar trough technology. As described in Section 2 of this Petition, the grading necessary to accommodate either the fixed tilt or single access tracking PV systems is considerably less than that required for the original BSPP, which will allow much of the storm water from runoff events to flow through the site with minimal drainage structures.

5.3.2 Changes in Environmental Impacts

Based on the footprint of the Modified Project, several sites that would have been potentially impacted by the Approved Project will not be impacted by the Modified Project. The buried natural gas pipeline will no longer be necessary for this project, reducing subsurface/surface impacts for 10 miles. Table 5.3-1 lists the sites that would no longer be impacted by the Modified Project, as well as the subsection within the Condition of Certification where the change should be made. In addition, a map showing the location of these sites with respect to the Modified Project boundary is being submitted separately under confidential cover.

TABLE 5.3-1
SITES NO LONGER IMPACTED OR PREVIOUSLY REMOVED FROM SITE LIST WITH CEC CONCURRENCE

CUL-#	CUL Heading	Subheading/ Subsection	Comment
CUL-6	PREHISTORIC QUARRIES ARCHAEOLOGICAL DISTRICT (PQAD) DATA RECOVERY AND DISTRICT NOMINATION	Paragraph 1	Removal of sites CA-Riv-2846, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, SMB-P-441, SMB-H-164, and SMB-M-214. These sites are no longer impacted by the Modified BSPP.
CUL-6	PREHISTORIC QUARRIES ARCHAEOLOGICAL DISTRICT (PQAD) DATA RECOVERY AND DISTRICT NOMINATION	Evaluation and Data Recovery Methodology: a. Quarries	Removal of site CA-Riv-2846. This site is no longer impacted by the Modified BSPP.
CUL-6	PREHISTORIC QUARRIES ARCHAEOLOGICAL DISTRICT (PQAD) DATA RECOVERY AND DISTRICT NOMINATION	3. Data Recovery from Thermal Cobble Features	Revision of language to reflect only one thermal cobble feature is located within the Modified BSPP.
CUL-7	DATA RECOVERY FOR SMALL PREHISTORIC SITES (LITHIC SCATTERS, CAIRNS, AND POT DROPS)	Paragraph 1	Removal of sites SMB-P-228, SMB-P-238, SMB-P-241, SMB-P-244, SMB-P-249, SMB-P-160, SMB-P-530, SMB-P-531, SMB-P-532, CA-RIV-1136 and SMB-P-252. These sites are no longer impacted by the Modified BSPP.
CUL-7	DATA RECOVERY FOR SMALL PREHISTORIC SITES (LITHIC SCATTERS, CAIRNS, AND POT DROPS)	Paragraph 1	Removal of sites SMB-H-TC-101 and SMB-H-TC-103 per CEC Compliance Project Manager (CPM) concurrence received 6/13/11.
CUL-8	CUL-8 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH FEATURES	Paragraph 1	Removal of sites SMB-H-203, SMB-H-205, SMB-H-207, SMB-H-222, SMB-H-223, SMB-H-245, SMB-H-247, SMB-H-250, SMB-H-251, SMB-H-163 and SMB-H-210. These sites are no longer impacted by the Modified BSPP.
CUL-8	CUL-8 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH FEATURES	Paragraph 1	Removal of site SMB-H- 409 per CPM concurrence received 11/29/10.
CUL-9	DATA RECOVERY ON HISTORIC-PERIOD SITES WITH STRUCTURES	Paragraph 1	Removal of sites SMB-H-432 and SMB-H-514. These sites are no longer impacted by the Modified BSPP.
CUL-10	DATA RECOVERY ON HISTORIC-PERIOD DUMP SITES	Paragraph 1	Removal of site SMB-H-261/262 per CPM concurrence received 11/29/10.
CUL-11	DATA RECOVERY ON HISTORIC-PERIOD REFUSE SITES	Paragraph 1	Removal of site SMB-H-181. This site is no longer impacted by the Modified BSPP.

Within the Modified Project footprint, blading and construction activities will still occur, but blading will be significantly less for the Modified Project. The Approved Project required the removal of up to 7 feet of sediments in order to completely level the ground surface for the solar trough construction. The technology for PV for the Modified Project does not require a completely level project area, but will require some blading. Due to the reduced blading and depending on the Modified Project PV layout and design, there is the potential to avoid some smaller archaeological sites. This possibility will be evaluated during the design phase.

For visual effects, the Modified Project will not have the power blocks with the 120-foot-tall cooling tower. The height for the solar troughs was approximately 24 feet, whereas the PV units will only be approximately 9 feet. Facility lighting will still be shielded and oriented to reduce night time illumination.

5.3.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded that, with the implementation of the Conditions of Certification, the Approved Project would comply with all applicable LORS. Finding 3 at page 395-196 of the Final Decision states:

> With implementation of the Conditions of Certification below, the BSPP will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portion of Appendix A of this Decision.

There are no new LORS that would affect the Commission's finding. The BLM's ROD for the EIS did state that the conditions for approval for the right-of-way grant for the BSPP included compliance with the National Historic Preservation Act section 106 requirements and the Programmatic Agreement.

Because the entire footprint of the Modified Project is within the footprint of the Approved Project and there would be significantly less soil disturbance, the BLM is evaluating the extent to which the Programmatic Agreement may need to be amended to reflect the reduced impacts.

5.3.4 Conditions of Certification

According to the Final Decision, the adoption and implementation of the Conditions of Certification **CUL-1** through **CUL-18** would put the Approved Project in conformity with all applicable LORS. Since the Modified Project reduces impacts to cultural resources and a number of the Condition of Certification verifications have been altered with the concurrence of the CEC CPM, NextEra Blythe Solar recommends the following modifications to the Conditions of Certification **CUL-6** through **CUL-11**. Note, only excerpts from the Conditions of Certification which show the revisions are provided in

this section, and a comprehensive set of both the revised and unchanged Conditions are provided under separate cover.

Proposed Revision to CUL-6

Rationale:

Condition of Certification **CUL-6** outlines steps related to the identification, documentation, and analysis of a possible Prehistoric Quarries Archaeological District (PQAD). A number of sites identified as potential contributors to the PQAD are no longer impacted by the Modified Project and should be eliminated from the Condition (see Table 5.3-1). In addition, methodologies and quantities proposed for data recovery from thermal cobble features are no longer applicable based on the Modified Project. Lastly, verification language has been revised to reflect the nomenclature of the Modified Project layout and to remove reference to pedestrian survey of the northwestern edge of site CA-RIV-3419 as the Modified Project has been designed to avoid that portion of the site.

CUL-6 PREHISTORIC QUARRIES ARCHAEOLOGICAL DISTRICT (PQAD) DATA RECOVERY AND DISTRICT NOMINATION

Prior to the start of ground disturbance, the project owner shall ensure that the CRMMP includes a PQAD evaluation and data recovery plan, to identify buried additional potential contributors to the district by geophysical or mechanical survey, to investigate and establish the relationships among all potential contributors by formulating research questions answerable with data from the contributors, conduct data recovery from a sample of the contributors, and write a report of investigations and possibly CRHR and NRHP nominations as well. The potential contributors include quarry site~~s~~ ~~CA-Riv-2846 and~~ CA-Riv-3419 and thermal cobble feature~~s~~ SMB-P-434~~,~~ ~~SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, SMB-P-441~~. This site list may be revised only with the agreement of the CRS and the CPM. The CRMMP shall also include a detailed data recovery plan for ~~three~~ **an** isolated potential thermal cobble feature~~s~~ (not included in the PQAD) at multi-component site~~s SMB-H-164, SMB-M-214,~~ SMB-M-418~~)~~.

…..

Evaluation and Data Recovery Methodology

a. Quarries:

The protocol for the quarry sites simultaneously recovers data from the parts of the ~~two~~ quarry site~~s, CA-RIV-2846 and~~ CA-RIV-3419~~,~~ that the project would impact and allows an assessment of the significance of the impacts of the project to the ~~two~~ quarry site~~s~~ and an assessment of the validity of the PQAD concept.

i. Conduct a 100 percent pedestrian survey of the parts of the quarry site~~s~~ that the project activities would disturb;

ii. Map and field-record finished tools, diagnostic artifacts, ceramics, artifact concentrations and features (and the material types of each) within the impacted portions of the quarry sites. ~~Indentify~~ **Identify** and quantify artifacts within a sample of no more than 1 percent of the impacted portions of the quarry sites using 2 by 2 meter surface units. Record any differential distribution of artifacts (with suggested explanations for the distribution), and assess the integrity of the site, providing evidence on which that opinion is based;

iii. …..

…..

3. Data Recovery from Thermal Cobble Features~~:~~

Data shall be recovered from ~~a sample of the individual~~ **impacted** thermal cobble features ~~to document these characteristic elements of the PQAD~~. The purpose of this documentation would be to describe the physical variability of the features, to identify and inventory the artifacts and ecofacts that are found in them, and to interpret the methods of construction and the potential uses of the features. The procedures below shall ~~also~~ be used for data recovery at **SMB-P-434** and the ~~three non-PQAD~~ potential thermal cobble feature~~s~~ at **multi-component** ~~(~~sites ~~SMB-H-164, SMB-M-214,~~ SMB-M-418~~)~~. Data recovery activities shall include:

~~i. Excavation of a sample of 20 percent of thermal cobble features (not to exceed 10 features), drawn from all of the thermal cobble features found as a result of the entire cumulative effort to inventory these PQAD contributors; preference should be given to data recovery from intact, buried examples, if any identified in geophysical or mechanical survey;~~

~~ii. Use of criteria to derive the sample that the CRS, the PPA, and the CPM shall agree upon and that reflect the spatial variability in the physical and material character and in the chronology of the PQAD, as such variability is presently known from the field investigations;~~

~~iii~~ **i.** Excavation would entail small (approximately 1–3 meters square) areal exposures by hand, where feasible, to remove the archaeological deposits in anthropogenic layers, if present;

~~iv~~ **ii**. Retention of samples ….
…..

4. Data Recovery from Former Land Surfaces Surrounding Thermal Cobble Features

…..

9. Outreach Initiatives If ~~PTNCL~~ **PQAD** is Not Eligible

a. Professional Outreach. The project owner shall ensure that the CRS and/or PPA prepare a research paper and present it at a professional conference, to inform the professional archaeological community about the PQAD and to interpret its implications for our understanding of the prehistory and early history of Native American life in the region.

b. Public Outreach. The project owner shall prepare and present materials that ~~I~~**i**nterpret the PQAD for the public. Project owner shall propose at least one outreach project~~,~~**;** examples may include one-time preparation of an instructional module or one-time preparation of a public interpretation brochure.

Verification: At least 15 days prior to the start of BSPP construction-related ground disturbance in the linear facilities corridor impacting site CA-Riv-3419, the project owner shall notify the CPM that the field recordation of the impacted southwestern portion of the site has ensued.

…..

1. At least 60 days prior to the onset of BSPP construction-related ground disturbance in Unit ~~1~~ **3** east of Historic Road SMB-H-601, the project owner shall ensure that the PPA completes the preliminary report on the formal inventory of the PQAD prepared by or under the direction of the CRS~~, and selection of~~

~~separate samples for the data recovery excavation of 10 PQAD thermal cobble features, and four block exposures to reveal intact buried land surfaces there.~~ The project owner shall ensure that the preliminary report is a concise document that provides descriptions of the schedule and methods of the inventory field effort, a preliminary tally of the numbers and, where feasible, the types of archaeological deposits that were found, a discussion of the potential range of error in that tally, and a map of the locations of the found archaeological deposits that has topographic contours and the project site landform designations as overlays. The results of the formal inventory, as set out in the preliminary report, shall be the basis for the refinement of the provisional district boundary.

2. At least 30 days prior to the start of BSPP construction-related ground disturbance in Unit ~~1~~**3** east of Historic Road SMB-H-601, the project owner shall notify the CPM that the CRS has initiated the data recovery phases of the data recovery program.

3. At least 30 days prior to the start of ground disturbance within 30 meters of the site boundaries of the three isolated thermal cobble features, the project owner shall notify the CPM that the CRS has initiated data recovery on the three isolated thermal cobble features.

~~4. At least 30 days prior to the start of ground disturbance within 30 meters of the northeastern portion of site CA-Riv-3419 that the project will impact, the project owner shall notify the CPM that the CRS has initiated the pedestrian surface survey of the northwestern edge of site CA-Riv-3419, with the permission of the BLM.~~

~~5~~ **4**. No longer than 90 days…..

Proposed Revision to CUL-7

Rationale:

Condition of Certification **CUL-7** outlines steps related to data recovery for small prehistoric sites. Proposed revisions to this Condition consist of removal of sites which are no longer impacted by the Modified Project or which were previously removed per concurrence between the Cultural Resources Specialist and CPM (see Table 5.3-1).

CUL-7 DATA RECOVERY FOR SMALL PREHISTORIC SITES (LITHIC SCATTERS, CAIRNS, AND POT DROPS)

The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "small prehistoric sites," consisting of sites ~~CA-Riv-1136, SMB-P-160,~~ SMB-M-214, ~~SMB-P¬228,~~ SMB-H-234, ~~SMB-P-238, SMB-P-241, SMB-P-244, SMB-P-249, SMB-P-252, SMB-P-410, SMB-P-530, SMB-P-531, SMB-P¬532,~~ SMB-H-CT-001, ~~SMB-H-TC-101, SMB-H-TC-103,~~ and SMB-H-WG-102. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan ….

Proposed Revision to CUL-8

Rationale:

Condition of Certification **CUL-8** outlines steps related to data recovery for historic-period archaeological sites with features. Proposed revisions to this Condition consist of removal of sites which are no longer impacted by the Modified Project or which were previously removed per concurrence between the CRS and CPM (see Table 5.3-1).

CUL-8 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH FEATURES

The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "historic-period archaeological sites with features," consisting of sites SMB-H-143, ~~SMB-H-163, SMB-H-203, SMB-H-205, SMB-H-207, SMB-H-210, SMB-H- 222, SMB-H-223, SMB-H-245, SMB-H-247, SMB-H-250, SMB-H-251, SMB-H- 409,~~ SMB-H-411, SMB-H-416, and SMB-H-419. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan ….

Proposed Revision to CUL-9

Rationale:

Condition of Certification **CUL-9** outlines steps related to data recovery for historic-period archaeological sites with structures. Proposed revisions to this Condition consist of removal of two sites which are no longer impacted by the Modified Project (see Table 5.3-1).

CUL-9 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH STRUCTURES

The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "historic-period archaeological sites with structures," consisting of site~~s~~ SMB-H-404~~, SMB-H-432, and SMB-H-514~~. This site list

may be revised only with the agreement of the CRS and the CPM. The data recovery plan ….

….

7. The project owner shall ensure a systematic metal detector survey is completed at each site, and that each "~~"~~hit" is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing.

Proposed Revision to CUL-10

Rationale:

Condition of Certification **CUL-10** outlines steps related to data recovery for historic-period dump sites. Proposed revisions to this condition consist of removal of sites which are no longer impacted by the Modified Project or which were previously removed per concurrence between the CRS and CPM (see Table 5.3-1).

CUL-10 DATA RECOVERY ON HISTORIC-PERIOD DUMP SITES

The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "historic-period dump sites," consisting of sites SMB-H-171, SMB-H-178, ~~SMB-H-224,~~ SMB-H-403, and SMB-H-427 on the proposed plant site ~~and sites SMB-H-261/262~~ and SMB-H-522/525 along the linear facilities corridor if impacts to the latter cannot be avoided by spanning. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan ….

Proposed Revision to CUL-11

Rationale:

Condition of Certification **CUL-11** outlines steps related to data recovery for historic-period refuse sites. Proposed revisions to this condition consist of removal of one site which is no longer impacted by the Modified Project (see Table 5.3-1).

CUL-11 DATA RECOVERY ON HISTORIC-PERIOD REFUSE SITES

The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "historic-period refuse sites," consisting of sites SMB-H-164, SMB-H-166, ~~SMB-H-181,~~ SMB-H-287, SMB-H-288, and SMB-H-423 (SMB-H-164 also has a probable prehistoric thermal cobble feature for which assessment and data recovery would be accomplished under CUL-6.). The focus of the recordation upgrade is to determine if these sites can be

attributed to the desert training center (DTC)/C-AMA use of the region and are therefore contributors to the DTCCL. This site list may be revised only with the agreement of the CRS and the CPM.

5.4 GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section describes the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Commission Final Decision for the Approved Project as it relates to geological and paleontological resources. As described below, potential impacts of the Modified Project are expected to be less than those of the Approved Project and will remain less than significant.

5.4.1 Summary of Project Changes Related to Geological and Paleontological Resources

The Modified Project removes the deeper foundations that would have been required within the power blocks for each of the four units of the Approved Project. In addition, the footprint of the Modified Project would be smaller than that of the Approved Project. No other aspect of the Modified Project is relevant to the analysis of geological or paleontological resources.

5.4.2 Changes in Environmental Impacts

As concluded during the proceedings for the Approved Project, CEC staff believes that the potential is low for significant adverse impacts to the BSPP from geologic hazards during its design life and to potential geological, mineralogical, and paleontological resources from the construction and operation of the BSPP. The only change in environmental impacts to geological and paleontological resources is a reduction in the potential to discover and impact paleontological resources for the Modified Project due to elimination of the deeper foundation excavations associated with the Approved Project and the smaller footprint compared to the Approved Project.

5.4.3 Compliance With LORS

There are no differences in the LORS analysis between the Modified Project and the Approved Project. LORS relating to the design of the Modified Project as contained in the Final Decision would ensure the Modified Project is designed to minimize impacts to and from geologic hazards.

Similarly, there are no specific LORS designed to protect paleontological resources that would be applicable to the Modified Project in a manner different than would be applicable to the Approved Project.

5.4.4 Conditions of Certification

No changes to Conditions of Certification in the areas of Geological or Paleontological Resources, or to the relevant General and Civil Conditions (e.g., **GEN-1**, **GEN-5**, and **CIVIL-1**), are necessary for the Modified Project.

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5.5 SOIL RESOURCES

This section describes the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Commission Final Decision for the Approved Project as it relates to soil resources. As described below, potential impacts of the Modified Project to soil resources are expected to be less than those of the Approved Project and will remain less than significant.

5.5.1 Summary of Project Changes Related to Soil Resources

As described in Section 2.8.3.2, the grading for the Modified Project is less intensive than the grading for the Approved Project. Furthermore, the footprint of the Modified Project at 4,070 acres is substantially smaller than the 6,831 acre footprint of the Approved Project.

5.5.2 Changes in Environmental Impacts

The only change in environmental impacts to soil resources is a reduction in the potential soil loss due to reduced grading activities and smaller footprint for the Modified Project.

5.5.3 Compliance With LORS

There are no specific LORS designed to protect soil resources that would be applicable to the Modified Project in a manner different than would be applicable to the Approved Project. Therefore the analysis contained in the Final Decision should remain unchanged for the Modified Project.

5.5.4 Conditions of Certification

No changes to Conditions of Certification in the area of Soil Resources are necessary for the Modified Project.

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Section 6 LOCAL IMPACT ASSESSMENT

The following sections provide a description of the modifications proposed to the BSPP as they may affect the assumptions, rationale, and Conditions of Certification in the Final Decision. As discussed in Section 2 of this Petition, NextEra Blythe Solar has not yet selected the exact combination of fixed tilt and single access tracking PV modules for the site. Such selection will be made as part of the final design of the BSPP. However, where there are differences between the two systems, NextEra Blythe Solar PVSI has included a comparison of each for the Commission to consider a "worse-case" for each technical area. Ultimately the selection of either fixed-tilt or tracking PV systems or a combination of both systems will not affect: the maximum or peak amount of construction and operation workers and associated traffic; the overall socioeconomic impacts; the amount of noise generated during construction or operation; or the overall visual impact of the site.

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6.1 LAND USE

As described below, impacts of the Modified Project to land use are expected to remain the same as or be less than those of the Approved Project.

6.1.1 Summary of Project Changes Related to Land Use

The only change proposed by the Modified Project that is relevant to land use is the reduction in the overall Project footprint. The Approved Project had an overall footprint of 6,831 acres, while the footprint of the Modified Project solar plant site would encompass 4,070 acres.

6.1.2 Changes in Environmental Impacts

The Modified Project would be approximately 2,761 acres smaller than the Approved Project. Therefore, impacts related to land use would be incrementally reduced under the Modified Project.

6.1.3 Compliance With LORS

In the Commission Final Decision, the Commission concluded in Finding 8 that "the proposed project would be consistent with applicable Land Use LORS including the Riverside County Airport Land Use Compatibility Plan for the Blythe Airport, with the exception of the prohibition on glint and glare effects." A revised glint and glare analysis has been conducted for the Modified Project (see Section 6.2, Traffic and Transportation). The results of this analysis show that potential impacts from glint and glare would be insignificant. Considering the results of the glint and glare analysis, the BSPP would be in compliance with applicable land use policies and LORS, including the Riverside County Airport Land Use Compatibility Plan for the Blythe Airport.

Finding 7 of the Approved Project Final Decision is conditional upon BLM approval of the ROW lease/grant and California Desert Conservation Area (CDCA) land use plan amendment. In the ROD for the project, the BLM did approve the ROW lease/grant as well as the CDCA land use plan amendment. The CDCA plan had not previously identified the BSPP site as a location for power generation, and therefore, an amendment to the plan was required to authorize the BSPP. The Modified Project is consistent with the terms of the original ROD approving the ROW lease/grant and CDCA plan amendment.

Since the time of the original Project review, the Departments of Interior and Energy have released the final *Programmatic Environmental Impact Statement to Develop and Implement Agency-Specific Programs for Solar Energy Development* (Solar Energy Development PEIS or PEIS). On October 12, 2012, the Secretary of the Interior signed the ROD for the PEIS. The PEIS establishes 17 Solar Energy Zones (SEZs) that will

serve as priority areas for commercial-scale solar development projects. The BSPP is located within the Riverside East SEZ and therefore would be consistent with the PEIS land use planning document.

The Modified Project would not interfere with or change the other Findings of the Commission as contained in the Approved Project Final Decision.

There are no other new land use policies or LORS that would be applicable to the Modified Project. By submitting this Petition to the Commission, NextEra Blythe Solar subjects the Modified Project to the exclusive siting jurisdiction of the California Energy Commission[8]. Section 25500 provides:

> The issuance of a certificate by the commission shall be in lieu of any permit, certificate, or similar document required by an state, local or regional agency, or a federal agency to the extent permitted by federal law, for such used of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency, or federal agency to the extent permitted by federal law.

Therefore compliance with the Commission's Petition For Amendment process will satisfy all land use related LORS applicable to the Modified Project.

6.1.4 Conditions of Certification

No Conditions of Certification were adopted by the Commission related to Land Use. The Applicant is not proposing any changes to the Project that would be expected to alter the land use in such a way as to require new Conditions of Certification to be applied to the modified Project.

[8] Public Resources Code 2550.1 (c) applies the entire chapter of the Public Resources Code to a facility that makes a Petition for Amendment.

6.2 TRAFFIC AND TRANSPORTATION

The following section discusses the Modified Project's impacts to traffic and transportation as compared to the Approved Project. As described below, impacts of the Modified Project to traffic and transportation, including glint and glare, are expected to be less than or equal to those of the Approved Project, and will remain less than significant.

6.2.1 Project Changes Related to Traffic and Transportation

The following aspects of the Modified Project would affect the analysis and Conditions of Certification for Traffic and Transportation.

- The construction traffic is slightly less for the Modified Project;
- The construction period is reduced from 69 months to 48 months or less;
- The operation traffic is reduced substantially for the Modified Project;
- The BSPP will no longer have solar trough mirrors that the Commission determined might interfere with airport operations at the Blythe Airport as a result of potential glint and glare from the mirrors; and
- The BSPP will no longer have any air cooled condensers with the potential to create thermal plumes that the Commission determined might interfere with airport operations at the Blythe Airport.

6.2.2 Changes in Environmental Impacts

6.2.2.1 Construction Traffic

As described in the Project Description, the Modified Project is expected to be constructed over an up to 48-month time period with a peak workforce of approximately 619 workers. The Approved Project was estimated to have up to 1,004 workers during the peak month (month 18). Therefore, the Modified Project would have a slightly reduced peak construction workforce compared to the Approved Project. This reduction in the peak workforce is not enough to warrant reduction of any of the requirements contained in the Final Decision designed to reduce impacts during the construction period.

6.2.2.2 Operations Traffic

The operations workforce is proposed to be reduced from 221 workers for the Approved Project to between 15 and 20 for the Modified Project. Therefore, potential traffic impacts associated with employee vehicle trips for the Modified Project are substantially less than those identified in the Final Decision for the Approved Project.

6.2.3 Reduction in Environmental Impacts with Respect to Blythe Airport

The Final Decision for the Approved Project identified potential effects on the Blythe Airport due to upward thermal plumes from the cooling towers and due to glint and glare of the reflective surface of the mirrors during low sun angle hours. First, the Modified Project will no longer require cooling towers or air cooled condensers and therefore upward thermal plumes have been eliminated. Second, since the PV panels are not as reflective as mirrors and are distant from the Blythe Airport, glint and glare should no longer be a potential issue for pilots using the Blythe Airport. Many PV projects have been proposed and constructed near airports and U.S. Air Force Bases. Additionally, the Commission should note that Riverside County Planning Department recently (2010) permitted a solar PV project on the Blythe Airport property itself[9].

6.2.3.1 Differences in Glint and Glare Impacts from Those Analyzed in the Final Decision

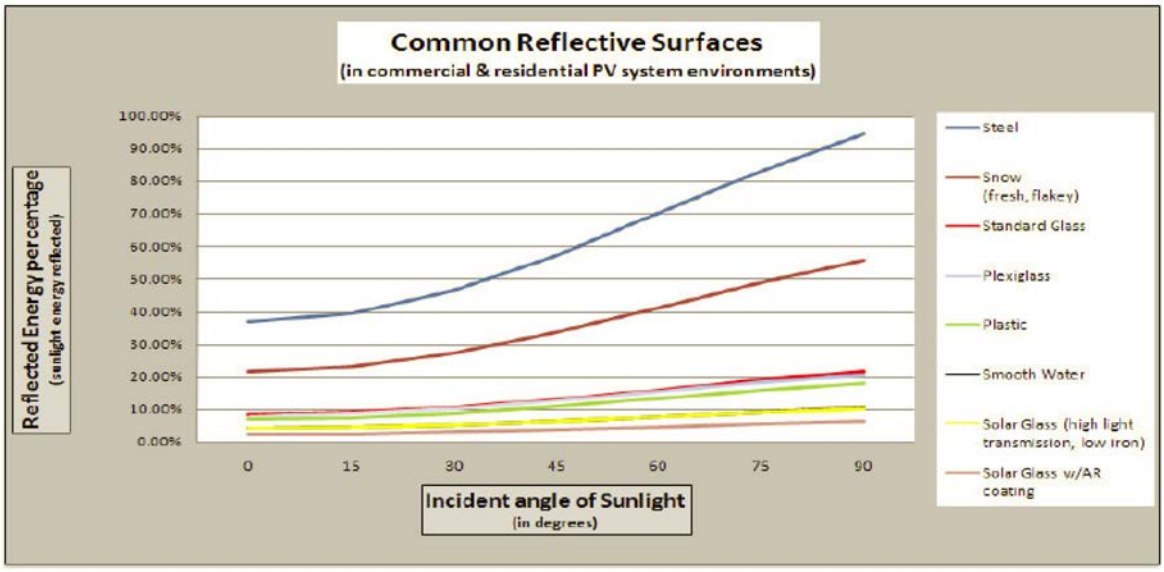
The electrical generation system in the Modified Project is substantially different from that analyzed in the Final Decision. The principal difference between the two solar technologies (parabolic mirrors versus PV) involves the means by which sunlight is converted to electrical power. The Modified BSPP is proposing to use high-transmission, low-reflectance PV panels with non-reflective coatings to transmit sunlight to solar cells that directly produce direct current electricity. The direct current is subsequently converted to alternating current. By contrast, the Approved Project proposed to use highly reflective parabolic trough mirrors to concentrate sunlight in a receiver tube filled with a circulating heat transfer fluid. The heat transfer fluid was to be heated by solar energy focused on the receiver tube by the parabolic mirrors and then conveyed in a closed loop to a heat exchanger for production of steam. The steam would then be used in a steam turbine generator to generate alternating current. The spent steam would subsequently be condensed in an air cooled condenser, a type of cooling tower.

The different approaches to generating electricity produce substantial differences in the resultant thermal plume produced by the steam condensation system and the potential for glint and glare from the solar collectors. Because the Modified Project uses direct conversion of sunlight to electricity, there is no need for a cooling tower since there is no steam generation and no need for spent steam condensation. Consequently, the potential hazard to aviation associated with the thermal plume emanating from the air cooled condenser in a solar thermal power plant is eliminated in the Modified Project.

The amount of glint and glare potentially produced is also substantially reduced in the Modified Project. As mentioned above, the PV panels are specifically designed to minimize reflection of incident sunlight while maximizing the transmission of sunlight

[9] On December 10, 2010 Riverside County Board of Supervisors agreed to lease 829 acres of Blythe Airport Property to NRG for construction and operation of a PV solar facility.

through the glass surface to the underlying solar cells. The efficiency of the PV panel is dependent on absorbing as much of the incident sunlight as possible in the solar cells. Manufacturer documentation of the reflection from PV high transmission low reflectance glass with non-reflective coatings indicated that PV panel surface glass is much less reflective than standard window glass and can be approximately 5 percent reflective for a normal incidence ray compared to approximately 20 percent for standard glass (see Figure 6.2-1, from SunPower 2009).



Source: SunPower 2009

Figure 6.2-1 Reflectance Curve of Common Reflective Surfaces

By contrast, a parabolic trough mirror is designed to reflect and focus as much of the incident sunlight as possible on the central receiver tube. However, no mirror is perfect as there are minor sources of reflection from the mirror arrays and central receiver tubes due to surface imperfections, mirror misalignment, local mirror warping, and edge effects at the ends of each mirror segment. When aggregated over an entire mirror array, edge effects can produce a minor source of glint and glare. In addition, the center glass receiver tube produces both reflection and refraction of sunlight. When these reflections are directed backward towards the mirror, the parabolic mirror then acts as a collimated source of light, leading to a slight glow from the mirror array when observed at a distance. A similar collimated light generation mechanism does not occur with PV panels.

Both PV and mirror solar collectors have reflections from their metallic supporting structures that are dependent on the surface characteristic, shape of the supports, and sun-PV panel-viewer geometry. However, all exposed PV support structures are

typically constructed with matt or burnished surfaces to reduce bright specular reflections.

6.2.3.2 Potential for Glint and Glare Impacts from the Modified Project

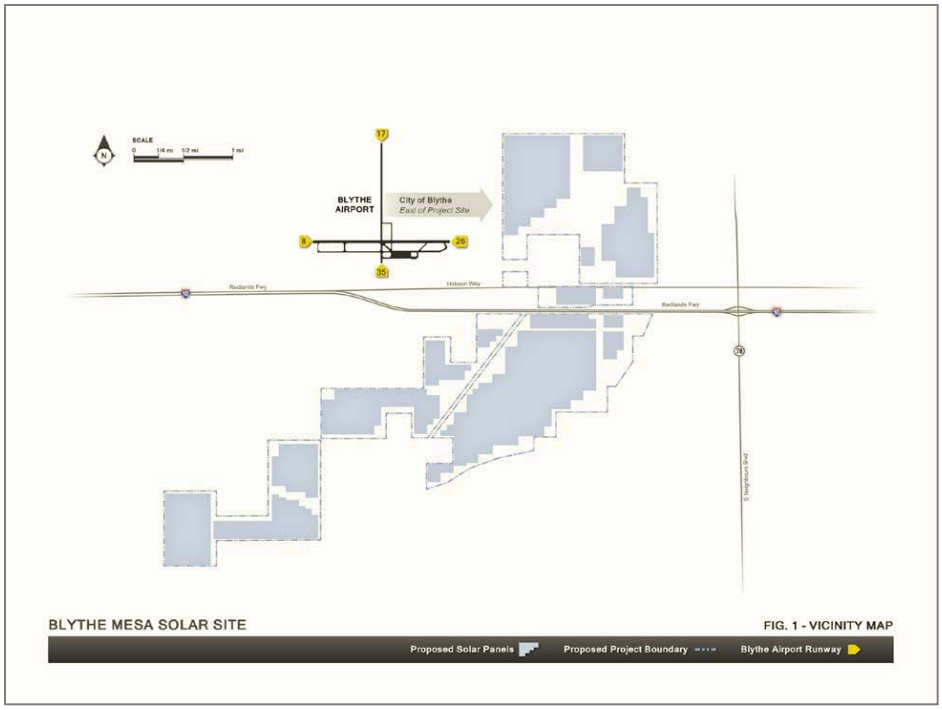
As summarized above, the source of glint and glare produced by PV panels in the Modified Project is substantially different than the glint and glare produced by parabolic trough mirrors as proposed for the Approved Project. The PV panels to be used at the Modified Project have inherently lower reflection characteristics than parabolic mirror arrays due to the fundamental difference in their physical process for collecting sunlight. For example, in its Technical Note *T09014, SunPower (2009) states:

> The glare and reflectance levels from a given PV system are decisively lower than the glare and reflectance generated by the standard glass and other common reflective surfaces in the environments surrounding the given PV system. Concerning random glare and reflectance observed from the air: SunPower has several large projects installed near airports or on air force bases. Each of these large projects has passed FAA or Air Force Standards and all projects have been determined as "No Hazard to Air Navigation."….

Glint and glare is critically dependent on the sun-reflection source-viewer geometry. Two different locations in the same project will not have the requisite geometry satisfied for a given observer, either ground based or aloft. The required geometry will exist only for a small portion of a given PV array; no other view direction will have the required sun-reflection source-viewer geometry that can exist simultaneous for PV arrays within the Modified Project (or for PV arrays in other nearby projects in the Blythe area).

As presented in the visual impacts section of this document, due to the surrounding topography, the Modified Project would be largely invisible from public roads. Observers potentially affected by glint and glare from the Modified Project would be travelers on Midland Road, users of off-highway vehicles, visitors to the McCoy or Big Maria Mountains or the Midland Long Term Visitor Area, and aircraft at the Blythe Airport. Again, the extent of glint and glare is dependent on the specific orientation of individual PV panels and the geometrical relationship of the sun, the PV panel, and the observer. Any such glare observed will not be significant given the low reflective nature of currently available PV solar panels.

A quantitative analysis was not performed for the Modified Project. However, a detailed quantitative analysis of glint and glare has been performed for the Blythe Mesa Solar Project (BMSP), a nominal 485 MW PV power project proposed for construction to the east and south of the Blythe Airport. The approach end of Runway 26 is less than a half mile from the nearest PV panel. Portions of the BMSP are directly beneath the established traffic pattern for the Blythe Airport, with a significant portion of the project within the Airport Compatibility Zone (see Figure 6.2-2).



Source: Renewable Resources Group 2011

Figure 6.2-2 Proposed Blythe Mesa Solar Project located near the Blythe Airport

A ray tracking analysis was performed by the BMSP applicant to analyze the potential magnitude of glint and glare from operation of the BMSP (Renewable Resources Group 2011). Even though the project is within a half mile of the approach end of Runway 26, the most used runway at the airport, and directly under the predominant flight pattern, the potential impacts on airport operations from glint and glare from the BMSP were determined by Renewable Resources Group (RRG) to be not significant. The Riverside County Planning Department did not indicate any disagreement with these findings, and in fact provided the presentation made by RRG to the Riverside County Airport Land Use Commission for BMSP as an example of an acceptable analysis of the impacts of glint and glare on aviation activities at the Blythe Airport.

The decrease in intensity of glint and glare with distance is subject to an inverse square law, with the intensity decreasing as the square of the distance from the source of glint and glare. As the Modified Project is at a greater distance from the airport than BMSP, the glint and glare produced by the Modified Project PV panels would be less and certainly no worse than the negligible impacts of glint and glare from the BMSP on aviation at the Blythe Airport.

As another example, the Riverside County Board of Supervisors has acknowledged this lack of significance of the potential reflections from a PV solar array by approving on December 14, 2010 the lease of approximately 829 acres of Blythe Airport land to NRG for construction of the Solar Blythe II project. The Solar Blythe II project is a nominal 21

MW PV facility on 200 acres within the Blythe Airport Compatibility Zone (Riverside Board of Supervisors 2010).

Additionally, glint and glare from the PV panels were analyzed by the BLM in the McCoy Solar Energy Project (MSEP)[10] EIS, and this impact was considered to be insignificant if non-reflective coating is used (BLM 2013). Glint and glare from other support structures and the gen-tie line (which crosses the Blythe Airport Compatibility Zone) was also analyzed by the BLM in the MSEP EIS, and this impact was not considered to be sufficient to cause an adverse change in the contrast rating.

It is becoming common to install PV solar panels at airports and military installations. For example, FedEx has installed a 0.9 MW PV system at its hub at the Oakland International Airport (Power Engineers 2010). Denver International Airport has installed a 1.6 MW solar system to provide power for airport operations (Power Engineers 2010). A simple internet search[11] identified active or proposed PV solar installations at Hickam Air Force Base (AFB), Davis-Monthan AFB, Nellis AFB, Edwards AFB, Los Angeles AFB, Peterson AFB, and Schriever AFB. The number of PV power generation systems at numerous airports around the country is strong evidence of the general consensus by the aviation community that PV electrical generation technology is not a hazard to aviation.

Based on the findings of the other PV projects in the immediate area of BSPP, with BSMP and Blythe Solar II Project within the Blythe Airport land use compatibility zone, as well as the now-common location of PV projects near air fields, a finding by the relevant agencies that the Modified Project would have insignificant glint and glare impacts would be appropriate.

6.2.3.3 Differences in Glint and Glare Impacts between Fixed-Tilt and Single-Axis Tracking PV Modules

At this time, NextEra Blythe Solar has not selected whether it would install a fixed-tilt or single-axis tracking modular system or a combination of both systems. A fixed-tilt system would always be at the same angle with respect to the sun while a tracking system will vary throughout the day. Both systems would be oriented on a north-south axis. Because of the varying orientation throughout the day, a tracking system would have slightly more potential for configuration that could be seen by pilots at different times of the day. However, as discussed above, all types of PV are designed to minimize reflection, and hence the potential for glint and glare from either type of technology would be negligible. Furthermore, potential glint and glare from the metal

[10] MSEP is 750 MW PV project that is proposed to be located adjacent to BSPP to the north.
[11] A single internet search with the key words “solar PV air force bases”; first page of results only.

footing and supports for the two technologies would also be negligible as discussed above, and the impact from both types of PV would be basically the same.

6.2.3.4 Cumulative Impact

There are multiple solar PV projects proposed for construction or in operation near the Blythe Airport in addition to the Modified Project. Four of the projects are located within the Blythe Airport Compatibility Zone, including two on the airport grounds itself. A list of projects within 6 miles of the airport is provided in Table 6.2-1.

The weight of evidence demonstrates that glint and glare from a PV solar array such as that proposed for the Modified Project, while it exists, is not significant and does not pose a hazard to air navigation. As the intensity of glint and glare drops off as the inverse square of the distance from the source to the observer, the glint and glare produced by Modified Project PV panels would be no worse and potentially significantly less than the impacts of glint and glare from the nearby BMSP and the two PV projects proposed for location Blythe Airport property. By the same reasoning, the potential impact of the other PV facilities further away will likewise be less than that of the Modified Project.

TABLE 6.2-1
SOLAR PV POWER PLANTS LOCATED NEAR THE BLYTHE AIRPORT

Project	Developer	Description
Blythe Solar Power Generating Station I	Amonix	Nominal 2 MW PV facility proposed for location on the Blythe Airport and within the Airport Compatibility Zone.
Blythe Airport Solar II	NRG	Nominal 21 MW PV facility proposed for location on the Blythe Airport and within the Airport Compatibility Zone.
Blythe Mesa Solar Project (BMSP)	Renewable Resources Group	Nominal 485 MW PV facility located to the east through south of the Blythe Airport with the nearest PV panels approximately one-half mile east of the approach end of Runway 08 and much of the project boundary within the Airport Compatibility Zone.
Desert Quartzite	First Solar	Nominal 600 MW PV facility with the nearest PV panels located approximately 2 miles southwest of the ends of the nearest runways. The northern portion of the facility is within the Airport Compatibility Zone.
McCoy Solar Energy Project (MSEP)	McCoy Solar, LLC (NextEra Energy Resources)	Nominal 750 MW PV solar power generation project located to the northwest of the Blythe Airport on land managed by the BLM and adjacent to BSPP. The closest project boundary is approximately 4 miles from the approach end of Runway 17.
McCoy Solar	EDF	Nominal 300 MW PV facility located approximately 6 miles northwest of the Blythe Airport adjacent to the MSEP.
Mule Mountain	Bullfrog Green Energy, LLC	Nominal 500 MW PV facility located approximately 5 miles southwest of the Blythe Airport.

Source: California Energy Commission, Renewable Energy Action Team (REAT) Generation Tracking Projects Report, Revised 10/03/12.

Although there are a substantial number of PV projects proposed in the vicinity of the Blythe Airport, glint and glare is highly localized for a given observer for a specific time of day and observing geometry. Highly specific conditions determined by geometry must exist for glint and glare to be observed, and such conditions will only occur for a single observer at a given instant in time and from a specific portion of an individual PV array. Multiple simultaneous observations of glint and glare by a single observer looking in a given direction are not possible unless two facilities are aligned along the same view axis. However, the glint and glare will fall off as the inverse square of the distance from the source so the more distance PV array will have a significantly reduced intensity when compared to the foreground PV array.

The potential glint and glare from the other PV facilities proposed for the Blythe area would likewise have a smaller impact that the BMSP would have. It should be recognized that the glint and glare from the BMSP was found to be insignificant by RRG and it is assumed the Riverside County Planning Department is in agreement with this finding. Consequently, the potential for cumulative glint and glare impacts between the Modified Project and other proposed solar power plants in the Blythe area should also be considered to be insignificant.

6.2.4 Compliance With LORS

In its Final Decision, the Commission concluded that, with the implementation of the Conditions, the Approved Project would comply with all applicable LORS related to traffic and transportation with the exception of glint and glare as it affects local aviation at the Blythe Airport. A revised glint and glare analysis has been conducted for the Modified Project. The results of this analysis show that potential impacts from glint and glare would be negligible and not present a hazard to air navigation. Considering the results of the glint and glare analysis, the BSPP would be in compliance with applicable traffic and transportation related policies and LORS, including the Riverside County Airport Land Use Compatibility Plan for the Blythe Airport. The Modified Project would therefore comply with all applicable policies and LORS related to traffic and transportation, and no new or additional LORS have been identified.

6.2.1 Conditions of Certification

The glint and glare analysis for the Modified Project demonstrates that potential impacts from glint and glare would be negligible and would not present a hazard to aviation at the Blythe Airport. As a result of this analysis, the Applicant recommends that Conditions of Certification **TRANS-7**, **TRANS-9**, and **TRANS-10** be deleted as they are unnecessary for the Modified Project.

LITERATURE CITED

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6.3 SOCIOECONOMICS

As described below, impacts of the Modified Project to socioeconomics are expected to be less than or equal to those of the Approved Project and will remain less than significant. As with the Approved Project, the Modified Project would not result in cumulative impacts related to socioeconomics.

6.3.1 Summary of Project Changes Related to Socioeconomics

The changes proposed for the Modified Project that could affect socioeconomics include the following:

- A reduction in the construction period from 69 months to up to 48 months.
- A reduction in the construction workforce from an average of approximately 604 daily construction workers, with a peak daily workforce of 1,004, to an average of 250 to 430 daily construction workers, with a peak daily workforce of 619.
- A reduction in the hiring of about 221 permanent, full-time employees to hiring 15 to 20 permanent, full-time employees from the local area for project operations. Temporary personnel would be employed, as needed, during seasonal periods when panel washing is required.

6.3.2 Changes in Socioeconomic Impacts

The Modified Project involves fewer construction and operations personnel. Thus, any effect on local population, housing, or public services identified in the Commission Final Decision would be less under the Modified Project. Since the Commission Final Decision found these impacts to be insignificant, that finding would remain true for the Modified Project.

While the Modified Project reduces the estimated number of construction and operations personnel, the Project still will produce a beneficial economic impact to the community of Blythe and surrounding communities by creating new jobs for skilled and unskilled workers. Summaries of the Modified Project's total economic impacts/benefits from construction and operation are presented in Tables 6.3-1 and 6.3-2, respectively. The economic benefits associated with anticipated construction and operation payroll, local purchases of materials and supplies, and sales tax revenues generated by the Modified Project will be less than the Approved Project, but will still have a beneficial effect on the local and regional economy.

The Commission also found that simultaneous construction of multiple (four other) large solar projects in the vicinity of BSPP would not have a significant cumulative impact on population, housing, or public services. Construction of two of these four projects (Desert Sunlight and Genesis Solar) is complete or nearly complete, Rice Solar (RSEP)

is on-hold, and Palen Solar (PSPP) is being amended to allow different solar thermal technology to be used (with about a doubling of the peak construction workforce needed). Another project adjacent to BSPP, the MSEP, is in the process of obtaining permits and approvals. The cumulative analysis for the Approved Project determined if the peak construction month for all five solar projects occurred at the same time, that a total construction workforce would be on the order of 4,200 construction workers. In the unlikely event that BSPP (peak of 619 workers), PSPP (2,311), RSEP (438), and MSEP (750) are constructed simultaneously with coincident peak construction periods, the total construction workforce would still be on the order of 4,200. The BSPP Final Decision indicated that this number of construction workers would fall well within the construction labor pool available in Riverside, San Bernardino, and Ontario areas that were assumed to service these projects. Therefore, cumulative socioeconomic impacts would remain less than significant.

TABLE 6.3-1
SUMMARY OF TOTAL ECONOMIC IMPACTS FROM CONSTRUCTION

Capital Cost (in millions)	$1,131
Local Materials and Supply Purchases (in millions)	$17
Total Construction Payroll (in millions)	$173
Total Sales Taxes During Construction (in millions)	$16

All values are approximate.

TABLE 6.3-2
SUMMARY OF TOTAL ECONOMIC IMPACTS FROM OPERATIONS AND MAINTENANCE

Annual Local O&M Purchases	$150,000
Total Annual O&M Payroll (in millions)	$1.4
Annual O&M Employment	15-20

All values are approximate.

6.3.3 Compliance with LORS

There are no changes in LORS that would be applicable to the Modified Project. Therefore, the analysis contained in the Final Decision should remain unchanged for the Modified Project.

6.3.4 Conditions of Certification

There were no Conditions of Certification imposed on the Approved Project in the area of socioeconomics. Consequently, no changes or additions are necessary for the Modified Project.

6.4 NOISE AND VIBRATION

This section describes the portions of the Modified Project that may affect the analysis, rationale, conclusions, and Conditions of Certification contained in the Commission Final Decision for the Approved Project as it relates noise and vibration. As described below, potential impacts of the Modified Project from noise and vibration are expected to be less than those of the Approved Project and will remain less than significant.

6.4.1 Summary of Project Changes Related to Noise and Vibration

The Modified Project will generate electricity through PV technology, and does not contain four power blocks with air cooled condensers (ACCs) and associated equipment. The power blocks with ACCs were the main sources of operational noise and vibration for the Approved Project. The Modified Project will have substantially reduced operational noise. Construction-related noise will also be reduced at the Modified Project, as there will be substantially less grading and other construction activity, and the previously proposed concrete batch plant is no longer planned.

6.4.2 Changes in Environmental Impacts

Construction noise from the Modified Project will be reduced from what was analyzed in the Approved Project as there will be substantially less grading and other construction activity, and a concrete batch plant is no longer planned for the site. There are no new pieces of equipment or methods of construction that were not analyzed previously for the Approved Project.

The Modified Project operational noise will be substantially less than the Approved Project, since there will no longer be power blocks, ACCs, or other associated thermal power equipment.

6.4.3 Compliance With LORS

The only noise-related LORS applicable to the Modified Project are the same as those that would be applicable to the Approved Project. The Modified Project will comply with all applicable noise-related LORS as enforced by the Conditions of Certification.

6.4.4 Conditions of Certification

The power blocks, ACCs, and associated thermal-power equipment were the main sources of noise and vibration concern for the Approved Project. By eliminating these components and using PV technology, the Modified Project will not generate substantial noise during project operations. Adherence to the applicable Conditions of Certification will ensure that the Modified Project will not generate substantial noise during construction. As the power blocks, ACCs, and associated thermal-power equipment

have been eliminated, Conditions of Certification **NOISE-4**, **NOISE-5**, and **NOISE-7** are no longer relevant and should be deleted.

Specifically, **NOISE-4** requires a community noise survey to ensure that the power block equipment does not certain levels or types of noise (pure tone components). **NOISE-5** requires an occupational noise survey. **NOISE-**7 requires mitigation if high pressure steam blows are to be performed prior to operation of the steam turbine and piping. Since steam turbines, piping, and other power block noise sources will not be installed, these surveys should no longer be required.

6.5 VISUAL RESOURCES

As described below impacts of the Modified Project to visual resources are expected to be less than or equal to those of the Approved Project.

6.5.1 Summary of Project Changes Related to Visual Resources

Changes proposed in the Modified Project that are relevant to visual resources include:

- Elimination of the power blocks for all four units including the 120-foot cooling towers;
- Elimination of the solar trough mirrors which are 24 feet tall; and
- Installation of PV modules on either a fixed mounting system or a single axis tracking system that would enable the module to track the sun.

6.5.2 Changes in Environmental Impacts

The Commission Final Decision ultimately found that the Approved Project, even with mitigation, would still result in significant direct, indirect, and cumulative impacts. The Modified Project will lessen those impacts because it will result in a substantially smaller footprint, less glint and glare, will eliminate taller structures, and the PV modules will be significantly less visible since they will be about a third of the height of the original solar trough mirrors.

The visual simulations for the Modified Project are included in Appendix I. The visual impact from all key observation points is less or equal to than the Approved Project.

6.5.3 Compliance With LORS

There are no specific visual related LORS applicable to the Modified Project.

6.5.4 Conditions of Certification

No modifications to the Conditions of Certification are necessary for the Modified Project.

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Section 7 POTENTIAL EFFECTS ON PROPERTY OWNERS

The Commission's Power Plant Siting Regulations require a Petition For Amendment to include: (1) a discussion of how the modification affects the public, (2) a list of property owners potentially affected by the modification, and (3) a discussion of the potential effect on nearby property owners, the public, and the parties in the application proceedings.

The Modified Project would not affect the public differently than the Approved Project. As described in every technical area evaluated in Sections 3, 4, 5, and 6 of this Petition, impacts of the Modified Project are either the same or less than the Approved Project. In addition to reducing impacts, the Modified Project would still result in the overall public benefits described in the Commission Final Decision.

A list of the adjacent property owners potentially affected by the Modified Project is provided in Appendix J.

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Section 8 CONCLUSIONS AND RECOMMENDED FINDINGS

NextEra Blythe Solar recommends that the Commission approve this Petition For Amendment with the Conditions of Certification changes proposed. The use of PV technology, in every technical area, either reduces impacts or results in impacts that are the same as the original BSPP.

The Commission originally made override findings for the BSPP accepting some impacts in exchange for the benefits of the project. The underlying rationale for those findings remains unchanged. Therefore, the Petition should be approved.

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